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NHRC REPORT



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NAVAL HEALTH RESEARCH CENTER

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NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND

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Naval Health Research Center
San Diego, California

1985 Annual Report

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Keywords: Naval Health
Research Center
1985 Annual Report

Availability Codes	
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Organization

SCIENTIFIC ACTIVITIES



CDR L. M. Dean, MSC, USN
Executive Officer



CAPT M. F. Fornes, MC, USN
Commanding Officer



LCDR A. R. Donohue, MSC, USN
Administrative Officer

From the Commanding Officer...

1985 represented an exceptional and productive year for the Naval Health Research Center. Our Annual Report for this year is replete with examples of productivity that mirror the operational thrust of this laboratory's commitment to research. The credibility and hence, the visibility of this laboratory, are dependent on this concept. There is no doubt in my mind that we have met all demands placed on us consistent with the command's Mission and Functions. I am grateful for, and proud of, the efforts of all our staff members whose contributions and hard work have made this a banner year for the Center. Morale has been high, productivity has been outstanding; team effort and cooperation have been exceptional. This annual report is a positive and objective reflection of a team effort that I cannot praise too emphatically.

Two retirements took place in the Office of the Commanding Officer.

On 28 February 1985, Commander Ernest J. Loos, MSC, USN, Administrative Officer, transferred to the Retired List, with 30 years of Active Duty at which time he received the Navy Commendation Medal. He was relieved by Lieutenant Commander A. Robert Donohue, MSC, USN, whose specialty area is Health Care Administration. He reported from duty as the Medical Program Manager of the Naval Reserve Readiness Command Region 19, San Diego. A former Hospital Corpsman, LCDR Donohue brings a vast knowledge of administration, having served as Administrative Officer at several Medical Clinics during his long career.

On 29 June 1985, Commander Duell E. Wood, MSC, USN, Executive Officer, transferred to the Retired List, having completed 22 years of Active Duty. He was relieved by Commander Larry M. Dean, MSC, USN, a Research Psychologist. CDR Dean came to NHRC following his tour of duty at the Navy Personnel Research and Development Center, San Diego. This is a return tour for CDR Dean. NHRC was his first duty station as a Research Psychologist, following his redesignation from a Line Officer to a Medical Service Corps officer. As Executive Officer, CDR Dean brings a broad base of staff, line, and operational research expertise to his position.

There are no changes in our Organization Manual; therefore, this year's report will only describe our Mission and Functions which are outlined on page 4. The Organization Chart is on page 3.

Scientific activities are reflected in the Chief Scientist's report followed by departmental reviews. The abstracts of our 1985 reports begin on page 22. Also included are other reports published in 1985, presentations given, meetings attended, and line briefings. Lectures and monthly


scientific colloquia, featuring presentations by distinguished visiting scientists and command staff, are summarized on page 41.

TAD, RESERVISTS, MILITARY MEDICAL STUDENTS

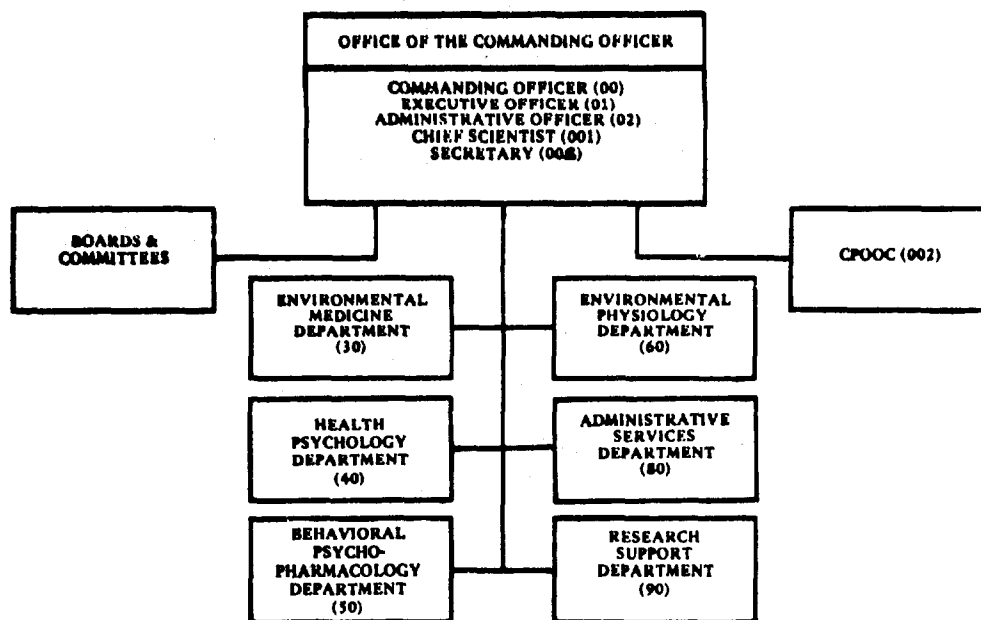
Reservist CDR Alfred A. Bove, MC USNR-R of the Cardiovascular Division and Department of Physiology, Mayo Foundation, Rochester, Minnesota, spent his ACDUTRA, the period 2-17 May 85, with the Exercise Physiology Program at Bldg 272, Naval Training Center.

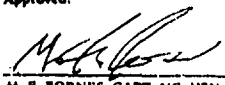
Reservist CDR J. Christian Gillin, MC USNR, Professor of Psychiatry at the University of California, San Diego, School of Medicine, serves his TAD with the Behavioral Psychopharmacology Department. Activities of the Reservists are provided on page 62.

Copies of NHRC Reports may be obtained by sending requests (with the report number) to the senior author.


M. F. FORNES
Captain, Medical Corps, U. S. Navy
Commanding Officer

ORGANIZATION CHART



31 December 1985	Approved:  M. F. FORNES, CAPT, MC, USN COMMANDING OFFICER	NAVAL MEDICAL RESEARCH & DEVELOPMENT COMMAND	NAVAL HEALTH RESEARCH CENTER Post Office Box 85122 SAN DIEGO, CALIFORNIA 92138-9174
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LOCATION

NHRC is located on Point Loma in San Diego, occupying six of the Naval Ocean Systems Center's "barracks" buildings as well as spaces in the Naval Hospital and Bldg 272 at Naval Training Center. Departmental locations are as follows: <Phone numbers are provided for assistance in contacting departments.>

Bldg 306 (Top Deck):	Office of the Commanding Officer	(AV 933-) (619) 225-2911
(Lower Deck):	Walter L. Wilkins Biomedical Library	" " 225-6640
Bldg 309	Research Support Department, Code 90	" " 225-2005/8
Bldg 315	Performance Enhancement Lab, Code 60	" " 225-6671
Bldg 331	Environmental Medicine Department, Code 30	" " 225-2071
Bldg 332	Environmental Medicine Department Code 30	" " 225-2061
Bldg 346 (Top Deck):	Environmental Physiology Department, Code 60	" " 225-7393
(Lower Deck):	Health Psychology Department, Code 40	" " 225-7395
NTC Bldg 272,	Physical Performance Lab, Code 60	(AV 957-) " 225-4308/79
NavHosp 36-4,	Behavioral Psychopharmacology Department, Code 50	(AV 987-) " 233-2481

**Organization Manual for the Naval Health Research Center
Effective 31 December 1985**

ORGANIZATION AND MISSION

MISSION AND FUNCTIONS

The mission of the Naval Health Research Center (NHRC), as assigned by the Secretary of the Navy, and the functions to be performed to accomplish the mission, as assigned by the Commander, Naval Medical Command, are as follows:

MISSION. To support fleet operational readiness through research, development, test, and evaluation on the biomedical and psychological aspects of Navy and Marine Corps personnel health and performance, and to perform such other functions or tasks as may be directed by higher authority.

FUNCTIONS. As directed by the Commander, Naval Medical Command, and exercised through the Commanding Officer, Naval Medical Research and Development Command, Bethesda, Maryland:

a. Conduct occupational health and safety studies in the naval service to: identify environmental hazards in the work place and aboard ship; assess the impact of potentially harmful agents or conditions on health and performance; determine causal factors in illness and accidents; and to develop cost-effective intervention strategies.

b. Maintain data files of medical and service history information for all naval personnel to: serve as the basis for longitudinal health studies on morbidity, disability, and mortality in relation to demographic, occupational, environmental, psychological, and service history variables; identify health and safety risks to naval personnel; and to assess the impact of chronic disease on performance and retention.

c. Conduct studies on the unique psychological, physiological, and environmental stresses which place demands on performance and biochemical homeostasis of Navy and Marine Corps personnel in operational environments; identify the physical, mental, and emotional requirements for maintenance and enhancement of performance during sustained military operations; and develop supportive programs for augmentation, restoration, and maintenance of physical fitness to enhance military job performance.

d. Conduct research to quantify the physiological and performance effects of occupational and environmental conditions, pharmacological agents, and certain clinical entities which may enhance or impair health and performance in operational settings.

e. Conduct studies of naval health care facilities as complex organizations which must coordinate activities of professional and support personnel to provide health care and assess influences on the cost, quality, and effectiveness of health care provision in shipboard and shore facilities; and develop information systems relating to Navy medical health care provision for management, clinical, and research purposes.

f. Develop biomedical engineering systems to: improve performance and physical fitness among naval service personnel; augment the quality of health care onboard ship and within naval shore facilities; and enhance casualty assistance and medical records management procedures in combat operations.

g. Provide effective liaison between Navy medical research and development efforts and WESTPAC Fleet Marine activities.

h. Provide or undertake such other appropriate functions as may be authorized or directed by higher authority.

EXTERNAL ORGANIZATION AND COMMAND RELATIONSHIPS

The Center is a tenant command of Naval Ocean Systems Center.

STATUS AND COMMAND RELATIONSHIPS

The Center is a shore (field) activity in an active operating status under a Commanding Officer, and under the command and support of the Commander, Naval Medical Command (COMNAVMEDCOM) exercised through the Commanding Officer, Naval Medical Research and Development Command, Bethesda, Maryland. The Center is under the area coordination authority of the Commander Naval Base, San Diego, California.

LOGISTIC SUPPORT

1. The Naval Ocean Systems Center (NOSC) provides direct logistic support to NHRC for functions of supply procurement, public works coordination, plant security and fire protection, civilian food service, printing services, safety program, and routine preventive maintenance for plant facilities.
2. Naval Hospital, San Diego, and Naval Medical Clinics, San Diego, provide medical treatment.
3. Naval Regional Dental Center provides dental treatment.
4. Naval Training Center provides special services and military berthing.
5. Naval Submarine Base provides enlisted berthing and military food service.
6. Naval Supply Center provides civilian payroll services.
7. Civilian Personnel Office, Naval Hospital, San Diego, provides and administers civilian personnel functions and EEO program.
8. Personnel Support Activity Detachment Point Loma, provides disbursing, travel, and military personnel procedures.
9. Public Works Center provides maintenance and public works functions, transportation, and building custodial services on a reimbursable basis.
10. Naval Legal Service Office, San Diego, provides command legal assistance.

STANDING BOARDS AND COMMITTEES

Functional statements for Boards and Committees are contained in directives which establish these bodies. All proceedings shall be made a matter of official record and submitted to the Commanding Officer (CO).

a. Position Management Board (PMB)

To guide and assist management in the establishment of sound organization, design, staffing requirements, and position structure necessary to carry out assigned tasks within constraints of costs and positive personnel practices.

b. Incentive Awards Board

To recommend policy and procedures for command Incentive Awards Program designed to improve Government operations and to motivate employees to increase productivity and creativity by rewarding those whose job performance and adopted ideas benefit the Government substantially above normal job requirements and performance standards.

c. Committee for the Protection of Human Subjects (CPHS)

Reviews all research proposals submitted by the command involving human subjects to determine that the risk to the subject is so out-weighted by the sum of the benefits to the subject and the importance of the knowledge to be gained as to warrant a decision to allow the subject to accept these risks. Ensures that the rights and welfare of any such subject will be adequately protected.

d. Scientific Planning and Review Council (SPRC)

Advises and recommends to the CO on all scientific aspects including old, new, and projected scientific programs as well as advising on all factors affecting the accomplishment of scientific goals.

e. Safety Committee

Conducts inspections for hazardous working conditions or materials and advises the CO on command safety matters.

f. Automatic Data Processing (ADP) Committee

Reviews requests for ADP hardware and software. Evaluates the ADP needs of the Center to ensure efficiency of operations and to prevent duplications.

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PERSONNEL

(as of 31 December 1985)

Civilian Personnel = 58

<u>Grade</u>	<u>Number</u>	<u>Grade</u>	<u>Number</u>
SES	2	GS-7	6
GS-14	1	GS-6	7
GS-13	5	GS-5	3
GS-12	7	GS-4	2
GS-11	13	WG-5	1
GS-9	11		

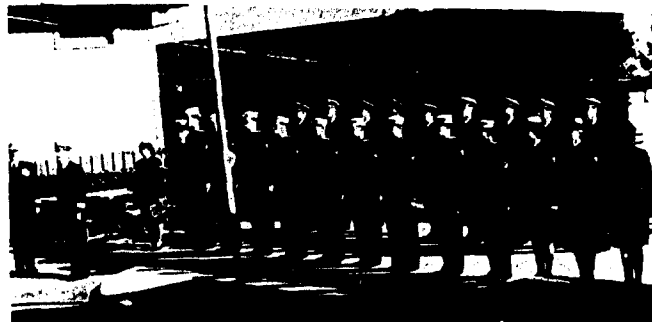
Military Personnel = 28

MEDICAL CORPS

			<u>ENLISTED</u>	
Captains:		E-7	8425/8404	1
Internist (Gastroenterologist)	1	E-7	8506/0000	1
Psychiatrist	1			
Commander:		E-6	8506/0000	2
Internist	1	E-6	8506/9588	1
		E-6	0000/0000	1
Lieutenant Commander:		E-5	0000/0000	1
Psychiatrist/Physicist	1	E-5	8506/0000	1

MEDICAL SERVICE CORPS

Commanders:		E-4	8506/0000	1
Research Psychologist	1	E-4	8454/0000	2
Clinical Psychologist	1	E-4	8454/8404	1
		E-4	0000/0000	1
		E-4	8404/0000	1
Lieutenant Commanders:		E-3	8454/0000	1
Environmental Health Officer	1	E-3	8404/0000	1
Health Care Administrator	1		Enlisted	16
Lieutenants:				
Research Psychologist	3			
Physiologist	1			
Officers	12			



There are several officers with additional duty to NHRC who serve on the Committee for the Protection of Human Subjects. They include one each of:

Captain, Medical Corps, USN

Lieutenant Commander, Chaplain Corps, USN

Lieutenant, Judge Advocate General Corps, USNR

WELCOME ABOARD TO**FAREWELL TO****Office of the Commanding Officer**

26 February, A. Robert Donohue, CDR MSC USN
Administrative Officer

21 June, Larry M. Dean, CDR MSC USN
Executive Officer

28 February, Ernest J. Loon, CDR MSC USN
Administrative Officer, Retired

30 June, Duell E. Wood, CDR MSC USN
Executive Officer, Retired

Administrative Services Department, Code 80

30 December, Kathleen Doyle
Library Aide (Temp)

17 June, HMC Robert J. Evoland, USN
Chief Petty Officer of the Command,
Transferred

4 October, Carmen Miranda
Clerk-Typist, Transferred

Research Support Department, Code 90

18 November, Dr. Jerry D. Goodman
Statistician (General)

18 November, Laurence P. Howard
Computer Clerk

24 August, Jovita Martinez
Computer Clerk, Relocated

Environmental Medicine Department, Code 30

31 March, Juanita "Jenny" Rosa
Secretary (Typing)

16 April, Dallas R. Hodgins
Computer Systems Programmer

26 May, Walter "Bill" W. Wilcox
Research Psychologist

22 July, Jay Ferns
Statistician (Health) (Temp)

26 July, Murlowe L. von Stuck, CDR MSC USN
Clinical Psychologist

5 August, Anthony J. Feaster
Computer Programmer

12 August, Dr. Troy Holbrook
Statistician (Temp)

12 August, Mark Lauteren
Computer Programmer (Temp)

8 October, Craig Bone
Statistician (Health) (Temp)

3 February, Christopher T. John
Computer Programmer, Resigned

1 April, Frederic D. Glogower, CDR MSC USN
Clinical Psychologist, Transferred

2 August, Teresa Burgess
Computer Operator (Temp), Termination
of Appointment

Health Psychology Department, Code 40

23 July, Eleanor Enrique
Clerk-Typist (Temp)

16 December, Louise Jarrett
Editorial Assistant (Typing), Medical
Retirement

Behavioral Psychopharmacology Department, Code 50

10 June, Steven A. Gomez
Research Psychologist

cont. WELCOME ABOARD TO

FAREWELL TO

Environmental Physiology Department, Code 60

29 January, HM3 David E. McCormick, USN General Duty	29 January, HM1 Georgie Kelley, USN Lab Technician, Transferred
30 May, HM Mark Greenwood, USN General Duty	31 January, HM2 Paul McCormic, USN General Duty, Transferred
3 June, HM3 Peter Bell, USN General Duty	8 May, Michael R. Lawlor, LT MSC USNR Research Physiologist, Released from Active Duty
7 June, HM3 Frederick L. Harris, USN Lab Technician	15 August, Edward J. Marcinik, LT MSC USN Physiologist, Transferred
16 August, HMC Larry Jackson, USN Independent Duty	1 September, HM1 Kathleen Kheury, USN General Duty, Released from Active Duty
19 August, Beatrice Sisk Clerk-Typist (Temp)	22 September, Ronald F. Crisman, LT MSC USN, Research Physiologist, Transferred
1 October, David A. Kobus, LT MSC USNR Research Psychologist	29 November, Beatrice Sisk Clerk-Typist (Temp), Termination of Appointment
7 October, James P. Norton, LT MSC USNR Aerospace Physiologist	

Biological Sciences Department, Code 70
(disestablished 30 September 84)

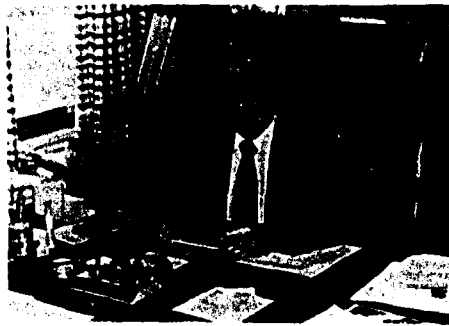
31 January, Dennis P. Nelson, CDR MSC USN
Biochemist, Transferred



A command "farewell picnic" was held
for Chief Eveland (#14).

CHIEF SCIENTIST'S REPORT

Laverne C. Johnson, Ph.D.



In October 1985, the Center was asked by Navy Medical Research and Development Command to present a review on February 24 and 25, 1986 of its research programs. Invitees to this review includes sponsors, users, and interested representatives from several Marine and Navy commands. In preparation for this review, I prepared introductory remarks that provided an historical review of the Center as well as its research orientation, major programs and accomplishments. A similar presentation was made by Dr. Walter Wilkins for the Vicennial Report of 1979. I am sure many of you did not see that report and perhaps it is appropriate to note from time to time the historical roots and orientation of a command, to record whether the original expectations of the command have been achieved, and to observe how the goals may have changed over the years.

History and Mission

The Naval Health Research Center (NHRC) is located on Point Loma, in San Diego, California, is a tenant of the Naval Ocean Systems Center, occupying six barracks buildings. Additional off-site facilities include a behavioral psychopharmacology laboratory at the Naval Hospital, San Diego, and an exercise physiology laboratory at Naval Training Center, San Diego. The strategic location of the Center places it close to various military groups--recruits, patients, and special training groups as well as Marines and Sailors in the surface, submarine, air, and shore communities. The Center is also close to the research facilities of the Naval Hospital.

NHRC was established in 1959. Originally designated the U.S. Navy Medical Neuropsychiatric Research Unit, its assigned Mission was to study neuropsychiatric problems as they applied to the naval service. In recognition of the broader research program which developed over the years, the name was changed in 1974 to the Naval Health Research Center. The revised Mission statement reads: "To support fleet operational readiness through research, development, test, and evaluation on the biomedical and psychological aspects of Navy and Marine Corps personnel health and performance, and to perform such other functions or tasks as may be directed by higher authority."

Research Programs

Implementation of this Mission has led to research into many fields as they relate to the medical aspects of physical and psychological stresses of naval environments: preventive and clinical psychiatry, neurology, psychopharmacology, biochemistry, infectious disease, psychophysiology, physical fitness, social psychology, sleep, sleep loss, sustained performance, epidemiology, occupational health, health psychology, and computerized medical information systems.

The research programs of the Center are now carried out by four research departments: Environmental Medicine, Health Psychology, Behavioral Psychopharmacology, and Environmental

Physiology. An overview of the research programs in each of the Departments is presented on pages 12-19. Research support is provided by the Research Support Department and the Administrative Services Department.

In contrast to platform-oriented laboratories, NHRC has focused on problems of interest to a wide range of Navy sponsors and users. In the Vicennial Report, the then Scientific Director, Dr. Wilkins listed the following projects as some of the major research endeavors of the first 20 years.

1. Pre-enlistment characteristics of recruits were used to predict four-year effectiveness in the Navy and Marine Corps, resulting in the development of the Odds-for-Effectiveness tables.

2. The studies of adaptation by social groups to wintering-over in the Antarctic indicated individual adaptation to be related to emotional stability, task motivation, and social compatibility.

3. The sleep laboratory at NHRC, the main Department of Defense laboratory for sleep studies, has studied the effects of sleep loss and abnormal cycles of work and rest on performance and physiological and psychological variables.

4. The prediction of illness in different naval samples by the assessment of recent life changes has advanced the research in this area.

5. The work completed on the returned prisoners of war has been important in evaluating the comprehensive medical examinations of these men and the adjustment of wives and children to prolonged separation.

6. Rapid methods for identifying microbial agents associated with infectious diseases were developed.

Our current research falls into six major areas: (1) epidemiology and occupational health, (2) computerized medical data bases and information systems, (3) sustained performance, (4) exercise physiology, (5) behavioral psychopharmacology, and (6) health psychology. The research productivity, national and international recognition, the requests for assistance and work by several naval commands, and the collaborative research with other services all attest to the success of our goal to attract and retain staff that would develop the six areas as centers of excellence.

The Center work units, page 20, reflect the specific studies in each of these areas and the individual presentations will further amplify the scope and findings in each of these projects. Our work units are either supported by specific tasking requests from operational commands or are part of an R&D Command program option.

Products

Behavioral scientists seldom produce tangible products that can be manufactured and deployed for operational use. An exception to this generalization, however, is illustrated in the development and deployment of the Navy Occupational Health Information Management System (NOHIMS). In this instance, requirements have been developed, software has been written, and a system is being turned over to the Naval Environmental Health Center (NEHC). Our epidemiology program is an often used research base by NEHC. The Combat Casualty Care Medical Information System will follow the path of NOHIMS as a tangible R&D effort.

A more usual route for behavioral sciences input into the operational arena is through information for instructions and policy statements. The work of the Exercise Physiology Program has

made a direct impact on the Navy's Health and Physical Readiness Program as reflected in the measurement of percent body fat and the instruction implementing the HPR Program.

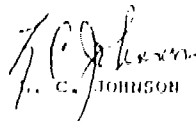
The Center's efforts in support of shipboard medicine are exemplified in our extensive studies of shipboard medical evacuations and, more recently, the extensive and intensive study of the training, duties, and attitudes of Independent Duty Corpsmen. Findings from these studies have been a factor in policy changes and are being used as basic resource data.

More commonly, behavioral scientists present their results in scientific articles and verbal reports. The publications and presentations for the past year are listed on pages 36 and 43, respectively. In preparing this overview, I was impressed by the consistency of the scientific publications over the 25 years this laboratory has existed. At the 20th Anniversary, Dr. Wilkins noted that the Center had published over 800 technical reports, 638 of which had been published in scientific and medical journals or as chapters in books. Those numbers average to 40 technical reports and 32 journal articles per year. Since 1969, the yearly average has been 41 technical reports, and on average, 32 of these have appeared as journal articles or book chapters. In 1985, 49 technical reports were approved (pages 22-35).

The number of professional level staff, military and civilian, expected to publish has fluctuated between 20-25 with a military-civilian support staff that has varied between 55-65. With the same consistent support from NMRDC which this command has received to date and with the same stability in staff, and recalling that past behavior is the best predictor of future behavior, the quality and quantity of the research at NHRC appear predictable.

Post Script

For the diligent reader, who by continuing to read these words is demonstrating sustained performance, there is one additional bit of information not presented in my laboratory review. This will be my final Chief Scientist's report. After 33 years of Federal Service and six years as Chief Scientist, I plan to retire June 3, 1986. I, however, will continue my association with the Center and professional activities but from my academic bases at San Diego State University and the University of California at San Diego. The achievements during the past six years have been due to the support and excellent work of NHRC scientific and technical staff. I wish to thank them for their support. My job has also been made easier by the close collaboration and support of Dr. Joseph Osterman, Director of Programs, Naval Medical Research and Development Command, and his program managers. One of the real pluses in my position as Chief Scientist has been the opportunity to interact with other scientists in military and civilian laboratories in the United States, Canada, and Europe. I look forward to continuing these associations but with a less pressing agenda. After 26 years of a very productive and pleasant relationship with the Naval Health Research Center, leaving evokes many feelings. But one of these feelings is not concern over the future scientific leadership. Dr. E. K. Eric Gunderson will provide able leadership and will maintain the high standards established during the first 26 years of this laboratory.


J. C. JOHNSON

Department: ENVIRONMENTAL PHYSIOLOGY

Head: Paul Naitoh, Ph.D.



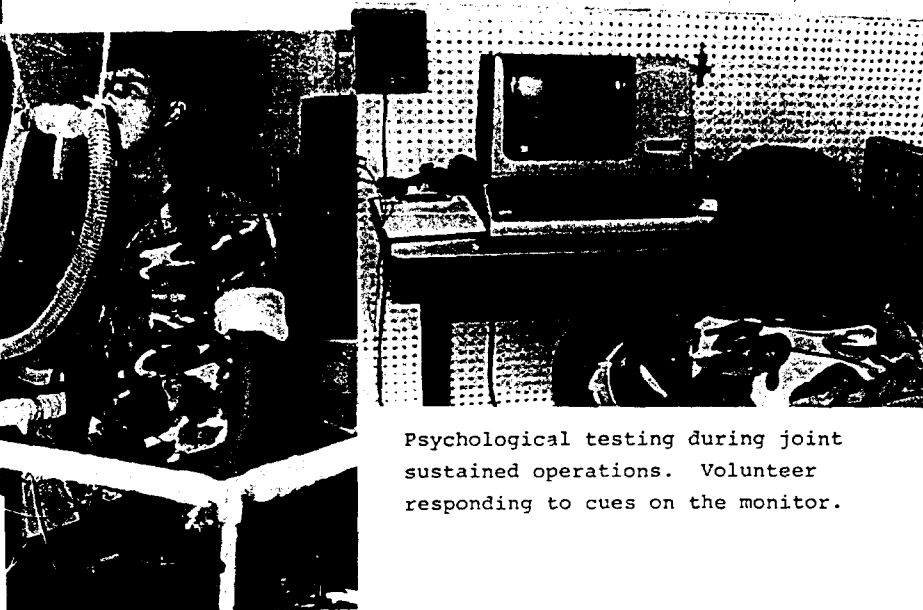
This Department has four major research programs: Neurometrics, Sustained Operations, Bioenergetics, and Physical Readiness, reflecting the diverse expertise of the principal investigators. This diversity has been planned and nurtured carefully so that we can implement one commonly shared purpose: to support successful completion of Navy and Marine Corps missions during sustained operations. To accomplish this goal, the aim of research in this Department has been the enhancement and maintenance of both physical and mental readiness and stamina among Navy and Marine Corps forces.

On the basis of past accomplishments and quality of the staff, the Department has attained a reputation as a center of research excellence in sustained operations and exercise physiology. Within the Department, there are two laboratories:

LABORATORY ONE specializes in identification of the mental, emotional, and physical requirements for sustained operations under unique military physical environments such as chemical warfare and operations involving SEALs and Marine Reconnaissance forces. The sustained operations laboratory is equipped with a microcomputer-driven mental performance test battery permitting multiperson testing stations linked by a local area network. Both sleep and awake data can be recorded.



Walking the treadmill with full standard field pack, monitored for oxygen uptake.



Psychological testing during joint sustained operations. Volunteer responding to cues on the monitor.

Response button for psychological testing responding to cues on monitor screen (in front).

LABORATORY TWO is an exercise physiology laboratory concerned with physical fitness and the relationship of physical readiness tests to health and performance. This laboratory is equipped with a complete physical performance test battery represented by Cybex and weight lifting systems. Body composition can be determined by an underwater weighing technique. For maximum flexibility, both laboratories are designed and instrumented to use similar treadmills and telemetry systems.



Isometric lift strength determination.

In support of Shipboard and Job Performance Studies.



Residual volume determination.



Residual lung volume -- determination prior to underwater weighing



"Happy Sailor" doing bike for life.



Muskrat trapping (underwater weighing, body composition determination).

Consolidation of the Neurometrics research into a single laboratory which will focus initially on the assessment of evoked potentials and their relationship to successful sonar operations is in progress.

While our research has been primarily Navy funded in support of Navy requirements, some of our work is part of a tri-service program. The sustained operations research in chemical defense environments is a tri-service effort; funding is channeled through the Army.

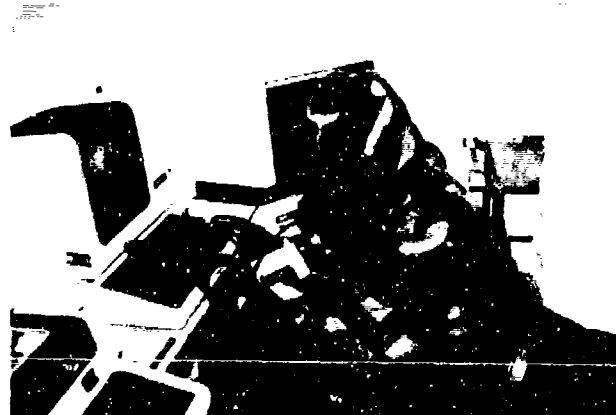
Bioenergetics is also funded by the Army.



Treadmill testing in MOPP IV chemical protective clothing for SUSOPS Study (in Bldg 315 lab).



The measurement of fatigue and sleep during sustained operations in a chemical environment (Trial CHACE II), Joint DCIEM, WRAIR and NHRC study in CFB Petawawa, Canada.



Performing NHRC PAB in MOPP IV Chemical protective clothing (in Bldg 315 lab).

The staff of this Department consists of both civilian and military--physiologists and psychologists, and one military physician, with support by Hospital Corpsmen and a physiologist from a local university. Most civilian professionals are long-term NHRC employees, giving the stability necessary for the establishment of expertise in one area.

The influx of military research personnel has brought, not only intellectual stimulation and enthusiasm, but also a keen awareness for keeping research relevant to military missions. The Department has encouraged field studies and is continually alert to collaborative research with operational commands.



Department: ENVIRONMENTAL MEDICINE DEPARTMENT
 Head : E. K. Eric Gunderson, Ph.D.

This Department conducts occupational health and safety research in the naval service to identify environmental hazards in the work place and aboard ship, to assess the impact of potentially harmful agents or conditions on health and performance, to determine causal factors in illness and accident risks, and to develop cost-effective intervention strategies to prevent or control such health risks. The Department studies morbidity, disability, and mortality in relation to demographic, occupational, environmental, psychological, and service history variables and conducts long-term prospective studies of health risks in career personnel, including the impact of chronic disease on performance and retention. The Department determines incidence, course, and outcome of psychiatric and substance abuse conditions and devises improved diagnostic and prognostic guidelines for effective patient management. The Department designs and maintains files of medical and service history information for all naval personnel as a basis for epidemiological studies of morbidity and mortality in naval populations. A second major area of research responsibility is the design and development of medical information systems for operational environments. Such environments impose severe constraints and special demands on software and hardware, and technological solutions generally are not available. One major product of these developmental efforts, the Navy Occupational Health Information Management System, is now ready for implementation at all major industrial facilities. Other major efforts include a combat casualty care medical information system for the Fleet Marine Force and medical information systems for ships.



CDR C. Holmes
 Groton, Connecticut



Helen Hardy
 NAVMEDCOM
 MIDLANT REG

NOHIMS
 End User
 Demonstration
 Conference

26-28 February 85
 San Diego



Jerry Schultz (Head, Op-045)



Department : BEHAVIORAL PSYCHOPHARMACOLOGY
Deputy Head: Cheryl L. Spinweber, Ph.D.



The Behavioral Psychopharmacology Department, better known as NHRC's "sleep lab", is working to develop psychopharmacological techniques for maintaining and enhancing human performance. Military missions may impose altered work/rest schedules, require sustained performance, and demand work under conditions of sleep loss, jet lag, or extremes in environmental conditions. Performance degradation may be a consequence of these mission factors. Our work is intended to identify sleeping aids, stimulants, dietary constituents, and other agents for operational use to alleviate the deleterious effects of these mission factors on readiness.

The research efforts are currently divided into a 6.1 effort (laboratory studies), and a 6.2 effort (a field study). The work is intended to progress over time, from 6.1 to 6.2, and then to implementation. In the laboratory studies, psychopharmacological agents which are potentially suitable for use in operational settings are evaluated for efficacy, dose-related effects, time course of action, and effects on performance at critical times post-ingestion. Since sleep loss is a major operational problem, our studies have focused on identifying sleeping aids which could help personnel fall asleep quickly, rest efficiently, yet remain responsive during sleep, and wake up refreshed and ready to do their jobs without drug-induced hangover. To date, we have studied two categories of sleep-inducing agents: benzodiazepine hypnotics, and the amino acid L-tryptophan--a dietary constituent.

During 1985, we expanded our research program to conduct an operational trial of the efficacy of the amino acid L-tryptophan in relieving jet lag effects. In preparation for our jet lag study, we developed a method for conducting field research in behavioral psychopharmacology. In the two data collection phases completed this year, subjects were Marines of the 1st Battalion, 5th Marine Division, and the 1st Battalion, 7th Marine Division, at Camp Pendleton, who were scheduled to fly to Okinawa. We obtained 24-hour EEGs from 12 subjects by use of an ambulatory monitoring system. A total of fifty Marines provided performance and subjective data two weeks ahead of departure as baseline, two days pre-flight, throughout the 17-hour plane trip, and for three days after arrival. Our goals in this research effort were to determine the effects of "jet lag" on sleep and performance and to develop psychopharmacological intervention techniques.



A Marine participant in our jet lag study carrying his weapon and gear before boarding the aircraft for the 17-hour flight to Okinawa.

The results of our study showed that l-tryptophan was effective in increasing nighttime sleep following arrival. Subjects who took l-tryptophan slept 54 minutes more than subjects who took a matching placebo. We also learned that certain kinds of performance, for example, a complex reaction time task, were improved in the l-tryptophan group by this increase in sleep time. Some tasks, like decoding, showed almost no jet lag effects, while other tasks, such as target shooting accuracy, were dramatically impaired by jet lag, in spite of our interventions. We also learned that memory performance was relatively normal at the time of arrival, but began to deteriorate over the first two days in Okinawa, suggesting that during the process of adjusting to the new time zone, some kinds of human performance get worse before they get better.



Lorene Irwin, EEG Technician, attaches electrodes to monitor EEG, EKG, and skin temperature in our field study of jet lag.



HM3 Robert F. Parrish applies electrodes for ambulatory monitoring of physiological functions.

Our research and objectives have received direct support from the Commandant of the Marine Corps who initiated a tasking document dated 9 June 83 which mentions specifically the need for a sleeping aid to alleviate jet lag effects and for stimulant agents to ensure mission accomplishment and safe return in special missions. More recently, the Commander of the Naval Sea Systems Command in a letter dated 28 August 84 called for development of biomedical technology including use of drugs to provide support for personnel engaged in arduous special forces missions.

As an important case in point, it is now common knowledge that the Royal Air Force (RAF) aircrews used sleeping aids during 6-hour rest periods in the Falklands conflict, and it has been said that these aids were pivotal in helping personnel to maintain the difficult duty schedules required in that campaign. In addition, some military pilots are interested in use of a sleeping aid to help obtain efficient daytime sleep between long nighttime air missions. These various agents and strategies for use should be carefully evaluated in research studies, and detailed guidelines should be developed for their safe and effective administration. Our research program is designed to provide this important information.

Department: HEALTH PSYCHOLOGY

Head : D. Stephen Nice, Ph.D.

The research programs in the Health Psychology Department represent an integrated approach to the study of a variety of issues which range from primary prevention through health care utilization and delivery. Our most extensive examination of health promotion and maintenance is being conducted in the Health and Physical (H&P) Readiness Program evaluation. This program evaluation has provided the Naval Military Personnel Command timely and detailed information regarding normative performance data on the H&P readiness tests and reliability estimates of field test procedures. Additional scientific input has been instrumental in the development of the revised H&P Readiness Instruction, 6110.1C.

Under the direction of Ms. Terry Conway, this program evaluation has been extended to include a longitudinal study of 5,900 randomly selected Navy personnel. This effort will provide a comprehensive examination of the relationships between life style behaviors, health risks, physical readiness, and related health and personnel effectiveness outcomes. The longitudinal design will also permit an evaluation of the effectiveness of program interventions to modify targeted health risk behaviors.

Body composition measurement taken during Health + + + and Physical Readiness testing at the Antisubmarine Warfare School, San Diego.



The Behavioral Immunology Program, headed by Dr. Ross Vickers, is a new initiative designed to identify attributes of individuals and jobs that predict high rates of infectious disease. Subsequent phases of this program will examine the associations between identified risk factors and immunological mechanisms in high risk Navy jobs. This basic research program will be closely coordinated with a network of organizations participating in behavioral immunology research.

In addition to these programmatic efforts in health and physical readiness and behavioral immunology, the Health Psychology Department has demonstrated a strong, continuing commitment to health services research. While much of our earlier work addressed organizational issues within the shore-based health care delivery system, more recent efforts have focused on the shipboard environment. LT Tom Hilton is the principal investigator of a comprehensive study of Shipboard Independent Duty Corpsmen. The results of this Navy-wide study have been presented in a series of briefings to the Naval Medical Command and have resulted in a number of important policy adjustments and initiatives.



Independent Duty Corpsman
HMC Belluto conducts a hospital
consultation follow-up in the
sick bay of USS KINKAID.

The research programs in the Health Psychology Department have demonstrated a high degree of productivity and responsiveness to Navy needs. In the coming years, we will continue to employ the most advanced scientific theories and methods to the study of Navy relevant issues within the context of Health Psychology.

Department: RESEARCH SUPPORT
Head : Raymond P. Hilbert



A VAX 11/780 with statistical packages was installed at NHRC in April 1983. This new computer system provides statistical analyses and eliminated a leased computer used previously to process analyses. During the second year of VAX operation, word processing software and four-letter quality printers were added to the system to meet the demand for word processing. This procedure now provides the capability for every terminal to be used for statistical analyses or word processing.

During FY85, graphic software, six graphic terminals and three hard-copy plotters were added to the system, enabling every user on the VAX to create his or her own graphic charts or displays.

Training for Department staff is conducted in-house. To supplement the capabilities of the VAX, a statistical consultant was added to the staff. He has developed a series of in-house classes on the use of statistical packages and is available for statistical support for command staff.

Another setup, a MicroVAX, dedicated to real-time processing activities, has been added to the system. Interfacing of the MicroVax with laboratory instrumentation has been completed. Software used previously on the PDP 11/23 has been converted for use on the new system. Installed in the Environmental Physiology laboratory, MicroVAX applications include monitoring of physiological and environmental variables during exercise sessions as well as psychological test administration.

PROGRAM 6 RESEARCH AND DEVELOPMENT DD-1498 WORK UNITS FOR FY-85 AND FY-86

FY-86 NEW and CONTINUATION Approvals

61152N IN HOUSE INDEPENDENT LABORATORY RESEARCH

MR0000.01.01 - 6035 CHANGE - Health and Performance Follow-up of Antarctic Winter-Over Personnel (Palinkas)

- NEW - The Effects of Selection Attention on the Processing of Auditory and Visual Information (Kobus)

- NEW - Pre-entry Physical Conditioning for BUDS Training (Norton)

61153N DEFENSE RESEARCH SCIENCES

MR041.01.003 - 0161 NEW - Effects of Psychopharmacological Agents on Performance (Spinweber/Johnson/Webb)
<DN246547>

MR041.01.07 - 0001 NEW - Evaluation of Risk Factors for Infectious Disease (Vickers/Hervig/Nice)
<DN246546>

62758N BIOMEDICAL TECHNOLOGY

MF58.528.002 - 0001 NEW - Psychopharmacological Techniques to Enhance Performance of Special Forces Personnel (Spinweber/Johnson/Webb)
<DN246548>

MF58.528.002 - 0003 CHANGE - Development of a Neurometric Test Battery for Prediction of Performance on Complex Tasks (Hord/Hilbert)
<DN477510>

63706N MEDICAL DEVELOPMENT ADVANCED

M0095.001 - 1053 NEW - Advanced Development of Medical Information System for Navy and Marine Corps Operational Environments (Pugh/Congleton/Palinkas/Helmkamp/McCaughey)
<DN246555>

M0096.001 - 1050 CHANGE - Maintenance of Performance Readiness under Shipboard Conditions (Hodgdon/Conway/Nice)
<DN477518>

M0096.001 - 1054 NEW - Epidemiology and Surveillance of Occupationally Related Disorders in Naval Personnel (Garland/Helmkamp)
<DN246550>

63713N OCEAN ENGINEERING TECH. DEVELOPMENT

M0099-PN.01C - 0014 NEW - Health Status of U.S. Navy Women Divers (Hoiberg)

65152N STUDIES & ANALYSIS SUPPORT (NAVY)

M0106.006 - 0002 CHANGE - Factors Affecting the Performance and Effectiveness of Shipboard Independent Duty Hospital Corpsmen (Hilton/Nice)
<DN24655>

ARMY - 6.37.64.A ADVANCED DEVELOPMENT OF ANTIDOTES

3M63764B995.AB-037 CHANGE - The Impact of Chemical Defense Measures on Sustained Military Operations (Englund/Naitoh/Yeager)
<DA307899>

3M637630819.AD-141 CHANGE - Bioenergetics of Exercise: Effects of Dietary Manipulation on Substrate Utilization in the Pig (Gray/McKirnan/White/Kolterman/Mandarino/Ziegler)
<DA307899>

REIMBURSABLE:
NavMilPerSCom: CHANGE - Health and Physical Readiness Program Evaluation (Conway/Nice)

FY-85 COMPLETIONS/TERMINATIONS

61152N IN HOUSE INDEPENDENT LABORATORY RESEARCH

MR0000.01.01 - 6034 Acute Effects of the Slow Channel Calcium Blocker Nifedipine on
Submaximal and Maximal Exercise Response in Ameroid Swine (Crisman)
Start Date: 1 Oct 84 Completion: 30 Sep 85

- 6036 Friction, Stress, and Upper Respiratory Infection (Vickers/Hervig)
Start Date: 8 Jan 85 Completion: 30 Sep 85

61153N DEFENSE RESEARCH SCIENCES

MR041.01.003 - 0157 The Effect of Benzodiazepines on Sleep, Brain Activity, Arousal Threshold
and Performance (Spinweber/Johnson/Webb)
Start Date: 1 Oct 78 Completion: 30 Sep 85

.01.06A - 0002 Behavioral Effects of and Adjustment to Cold Environments (Vickers/Hervig)
Start Date: 1 Oct 81 Completion: 30 Sep 85

.122-001 - 0005 Epidemiology of Low White Blood Cell Count (LWBCC) in Employees of NWC China
Lake (Garland/Tuiken/Gunderson)
Start Date: 1 Oct 81 Completion: 30 Sep 85

62758N BIOMEDICAL TECHNOLOGY

MF58.524.001 - 0007 Epidemiological Analysis of Health and Safety in Naval Occupations and
Environments (Garland/Helmkamp/Gunderson)
Start Date: 1 Oct 82 Completion: 30 Sep 85

MF58.524.003 - 0005 Environmental Exposures and Morbidity among U.S. Navy Submarine Personnel
(Garland/Helmkamp/Gunderson)
Start Date: 1 Oct 83 Completion: 30 Sep 85

MF58.528.01A - 0001 Age-Specific Morbidity among Naval Aviators (Hoiberg)
Start Date: 1 Oct 80 Termination: 30 Nov 85

63706N MEDICAL DEVELOPMENT ADVANCED

MR095-PN.001 - 1052 Advanced Development of an Operational Medical Information System (OMIS)
(Pugh/Congleton/Palinkas/Helmkamp/McCaughy)
Start Date: 1 Oct 84 Termination: 30 Sep 85

63711N OCEAN ENGINEERING TECH. DEVELOPMENT

MR099-PN.01C - 0008 Long-term Health Effects among Navy Divers (Hoiberg)
Start Date: 1 Oct 80 Completion: 30 Sep 85

64771N MEDICAL DEVELOPMENT (ENGINEERING)

MR0933-PN.003 - 0001 Development and Pilot Testing of a Navy Occupational Health Information
Management System (NOHIMS) (Pugh/Gunderson/Helmkamp)
Start Date: 1 Oct 81 Completion: 30 Sep 85

ARMY - 6.37.63.A ADVANCED DEVELOPMENT OF ANTIDOTES

3M463763D809.AH.306 Development and Evaluation of Improved Methods for the Identification of
<DA307899> Infectious Disease Agents of Military Importance (Nelson/Griswold)
Start Date: 1 Oct 82 Termination: 31 Jan 85

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1985 TECHNICAL REPORTS WITH ABSTRACTS

85-1 Pugh, WM & DM Hamilton
Developing Technical Documentation Standards for NOHIMS
(Center Publication, AD# A161-075)

Work Unit #M0093-PN.003-0001

Abstract: Previously, naval technical documentation standards have been developed using a static, top-down, structured approach that is oriented toward languages such as COBOL and FORTRAN. Because NOHIMS (Navy Occupational Health Information Management System) uses the Massachusetts General Hospital Utility Multi-Programming System (MUMPS) language, which is dynamic by nature, this technical documentation had to be redesigned to accommodate its flexibility. This paper describes a transactional approach to documenting the NOHIMS system. Examples of documentation worksheets, as well as a diagram depicting the levels of documentation and their relationship to the transaction center, are provided. This method of documentation may be advantageous for others who are working with dynamic or evolving systems.

85-2 Helmkamp, JC; RL Cohen, DM Ramsey-Klee, KE Guidera, & CM Bone Work Unit #M0933-PN.003-0001
Development of Medical and Occupational History Forms for the Navy Occupational Health Information Management System
(Center Publication, AD# A150-091)

Abstract: This report describes the development of the medical and occupational history forms in support of the Navy Occupational Health Information Management System (NOHIMS). The forms are presented in detail and discussed in terms of their importance in a computerized medical information system. The use of these forms will provide a comprehensive summary of an individual's medical, employment, and exposure history throughout his or her adult life.

85-3 Naitoh, P Work Unit #MF58.524.004-9026
In Search of REM Cycle in Short Sleep Record: Iterative Nonorthogonal r^2 Method
In: H Schulz & P Lavie (eds), Ultradian Rhythms in Physiology and Behaviour. Heidelberg, Germany: Springer Verlag, 1985. pp 270-287

Abstract: Polygraphic records of adult human sleep could be manually classified into sleep stages, including Rapid Eye Movement (REM) sleep. REM sleep recurs every 90-100 minutes in adult sleep. This cyclic recurrence expresses one of the ultradian rhythms in human sleep, i.e., the REM cycle. To describe the strength and duration of the REM cycle, statistical methods have ranged from a simple estimation of inter-REM intervals and associated variance to a complex spectrum analysis. In this paper, a variant of spectrum analysis, an iterative nonorthogonal r^2 method written in FORTRAN, was described and its applications were discussed. The data analyzed included (1) adults' sleep data where their sleep environments were disturbed either by noise pulses or by elevated ambient temperature in a sleep chamber, (2) infant twins' sleep data, and (3) adults' sleep data where subjects experienced gradual reduction in hours of sleep. The r^2 method strengthened an insight that the rhythmic intensity of the REM cycle was sensitive to environmental disturbances, but the REM cycle length was highly resistant to change and it seemed to be endogenously and maturationally determined. Despite its limitation, the r^2 method might be found useful for clinical applications because of its conceptual simplicity in analyzing the REM cycle data.

85-4 Congleton, MW
Computerization of Navy Outpatient Mental Health Clinics
(Center Publication, AD# A154-190)

Work Unit #M0095-PN.001-1052

Abstract: The Navy Mental Health Information System (NAMHIS) is a comprehensive, automated recordkeeping and reporting system. It is designed to meet the needs of clinicians and administrators in naval outpatient mental health clinics. The public domain version of the Computer Stored Ambulatory Record (COSTAR) was extensively modified to meet the software requirements of NAMHIS and covers the five system functions: Patient Registration, Encounter Data, Patient History, Mental Status Examination, and Reporting Capability. Data collection forms have been developed as well as standardized reports of individual patient/clinician consultations.

85-3 Helmkamp, JC & CM Bone Work Unit #MF58.524.001-0007
Hospitalizations for Accidents and Injuries in the U.S. Navy. I. Duty Station Assignment
and Duty Status
(Center Publication, AD# A155-045)

Abstract: The relative incidence of accidental injury hospitalization among Navy enlisted men during the 3-year period 1977-79 was analyzed by duty status (on- or off-duty at the time of injury) for major operational, administrative, tactical, and support activities. Compared with the total Navy injury hospitalization rate, UDT/SEAL, cruiser, destroyer, and conventionally powered aircraft carrier personnel had significantly higher rates. Nuclear submariners and shore-based personnel had significantly lower rates. In examining the effects of duty status on injury hospitalization, personnel from destroyers, replenishment ships, and conventionally powered carriers had higher on-duty hospitalization rates compared with Navy-wide norms, while nuclear submariners and all other personnel had lower rates. For off-duty accidents, personnel on cruisers and destroyers had significantly higher rates, whereas personnel assigned to Fleet Marine Force and nuclear submariners had significantly lower rates than were observed in the total Navy. The positive and significant correlation observed between on- and off-duty hospitalization rates suggests that common personal attributes such as risk-taking behavior are manifested both on and off the job. Our results have shown that factors associated with the shipboard environment in general, and by ship type specifically, may contribute to the observed high risk of injury.

85-6 Hamilton, DM & WM Pugh Work Unit #M0933-PN.003-0001
MUMPS Programming Documentation Standards

Abstract: On 15 November 1984, ANSI XII.1-1983 standard MUMPS (Massachusetts General Hospital Utility Multi-Programming System) was approved for DoD use. Because existing documentation standards, which have been oriented toward static systems, are difficult to apply to MUMPS-based systems, a new documentation standard was developed. To accommodate the flexibility inherent in MUMPS, a transactional approach was taken. This manual describes the transactional approach to documenting a MUMPS system. Examples of worksheets, as well as data flow diagrams, have been provided. This method of documentation may be advantageous for others who are working with dynamic or evolving systems.

85-7 Holberg, A Work Unit #MF58.518.01A-0001
Longitudinal Study of Cardiovascular Disease in U.S. Navy Pilots
(Center Publication, AD# A154-331)
Aviation, Space & Environmental Medicine (in press)

Abstract: This longitudinal study examined the consequences of cardiovascular disease (CVD) in 145 U.S. Navy pilots who suffered a CVD incident during the 1972-79 time period. Results showed that one pilot died, one suffered a second myocardial infarction, and 32 pilots were hospitalized and/or retired with a physical disability because of CVD. The majority of subsequent CVD incidents occurred during a 12-month period after the initial CVD event; 35% had discontinued flying prior to the initial CVD incident. Percentages of pilots who either remained on active duty or were separated for nonmedical reasons ranged from 64.3% for pilots in the chronic ischemic heart disease sample to 97.6% for the symptomatic heart disease group. Thus, the majority of pilots were returned to duty either after the initial CVD incident or subsequent to the rehospitalization or physical evaluation board. In general, these findings reflected the high level of physical and mental well-being of the U.S. Navy pilot population.

85-8 Helmkamp, JC & CM Bone Work Unit #MF58.524.001-0007
Hospitalizations for Accidents and Injuries in the U.S. Navy. II. External Cause of
Accident, Duty Station Assignment, and Level of Seniority
(Center Publication, AD# A155-046)

Abstract: An epidemiological analysis of accident-related hospitalizations was conducted to determine if risk varied by external cause, seniority, or duty station and, for selected causes and groups, whether the risk varied by duty status (on- or off-duty). All Navy male enlistees who had an accident that resulted in a hospitalization during the period 1977-79 were included in the study (N = 5608). By using ICDA-8 external cause codes, it was determined that athletic, automobile, and

motorcycle-related accidents accounted for 63% of all off-duty injury hospitalizations. Machinery, falls, and miscellaneous accidents were the three most frequent (59%) causes of hospitalization for on-duty personnel. An inverse relationship was observed between risk of injury and seniority, i.e., higher injury rates occurred in lower pay grades. Compared with the total Navy, destroyer personnel had a significantly higher on-duty accidental injury hospitalization rate from machinery and falls. Replenishment ship personnel had the highest hospitalization rate for injuries caused by machinery (Relative Risk = 1.94), while shore-based personnel had the lowest rate (Relative Risk = 0.75). These results indicate that risk of injury among Navy enlisted personnel varies widely as a function of seniority, duty station, duty status, and contributing cause, thereby strengthening the hypothesis that the shipboard environment is a major risk factor for accidents and injuries.

85-9 Garland, FC & ED Gorham
Review of Duodenal and Gastric Ulcer
(Center Publication, AD# A160-919)

Work Unit #MF58.524.001-0007

Abstract: Duodenal and gastric ulcer are chronic, frequently recurring conditions that in the past were grouped together as peptic ulcer. Many diverse environmental and genetic factors, which create an imbalance between secretion of acid and pepsin by the stomach and the resistance of the gastrointestinal mucosa, may lead to the development of a duodenal or gastric ulcer. Incidence trends and risk factors for these two diseases are different. Reported mortality and hospitalization rates declined markedly for duodenal ulcer from 1970-78, but remained relatively stable for gastric ulcer over the same time period. Recent changes in treatment and diagnosis may account for much of this decline. Several environmental factors associated with duodenal or gastric ulcer have been identified. The principal risk factor for duodenal ulcer is cigarette smoking. Less certain associations with diet, emotional stress, coffee consumption, and occupation also have been reported. Risk of gastric ulcer also is increased by cigarette smoking. Aspirin used, however, is the strongest reported risk factor for gastric ulcer (Relative Risk = 6.5). Uncertain associations between gastric ulcer and alcohol consumption also have been reported. Separate familial aggregation of duodenal and gastric ulcer indicates that genetic mechanisms leading to the development of these diseases also are distinct. Inheritance patterns were described for hyperpepsinogenemia I, the Zollinger-Ellison syndrome, and several other genetic conditions predisposing to the development of either duodenal or gastric ulcer.

85-10 Nice, DS & S Conway
Patient Referrals and Consultations Initiated by Pacific Fleet Ships during In-port Periods
(Center Publication, AD# A156-940)

Reimbursable 64771N R0933

Abstract: This study was designed to document the proportion of shipboard patient visits requiring in-port consultative or referral services, and to identify the nature of those services received. Approximately 11% of in-port patient visits required outside medical assistance, with independent duty corpsmen referring at a substantially higher rate (18%) than physicians (7%). While the majority of physician referrals (90%) were directed to specialty clinics, independent duty corpsman referrals were approximately evenly divided between specialty and general medical clinics. The rank order of referral diagnoses and consultations was generally similar for physicians and independent duty corpsmen, with orthopedic problems comprising the majority of consultations.

85-11 Palinkas, LA & PA Coben
Combat Casualties among U.S. Marine Corps Personnel in Vietnam: 1964-1972
(Center Publication, AD# A160-856)

Work Unit #M0095-PN.001-1052

Abstract: This paper provides a descriptive account of combat casualties among Marine Corps personnel in Vietnam between 1964 and 1972. The Marine Corps Medical Inpatient file was searched for all hospital admissions which were identified as a battle wound or injury. The records of 78,756 Marines who were wounded or injured in combat in Vietnam were identified. These individuals accounted for 120,017 battle-related diagnoses of accidents, poisonings, and violence. Most of the wounded Marines were young (under the age of 25), junior enlisted infantrymen with one year or less of service. The First and Third Marine Divisions accounted for the majority of casualties. Multiple open wounds and open wounds of the lower limbs were the most common primary diagnoses.

Bullets, mines, and booby traps were responsible for more than half of the wounds and injuries. Most casualties were treated at a naval hospital, hospital ship, dispensary, or the Naval Support Activity in Da Nang. Marine battalion aid stations and field hospitals accounted for the second largest percentage of casualties treated. The mortality rate of wounded patients was much lower than has been reported for Army casualties in Vietnam or casualties in previous conflicts.

85-12 **Holberg, A & RG Burr** Work Unit #MP58.528.01A-0001
Longitudinal Study of the Health Status of U.S. Navy Combat Pilots

Abstract: Results of this longitudinal study revealed that, during the first 5-year post-combat interval, U.S. Navy noncombat pilots ($n = 4,475$) had a significantly higher total hospitalization rate than combat pilots (3,043 pilots with more than 275 combat hours and 2,792 pilots with less than 275 combat hours). Repatriated prisoners of war ($n = 79$) had an elevated rate for a cluster of parasitic diseases. During the 5-9 year period after combat, both combat pilot groups had significantly higher hospitalization rates than controls for cardiovascular disease and alcoholism. Ten years after combat, pilots with more than 275 combat hours had the highest total hospitalization rate with significantly higher rates than others for nonaviation-related accidental injuries and neoplasms. Such results suggested that the stressors of combat may have been a contributing factor in the higher rates for these conditions.

85-13 **Marcinik, EJ; JA Hodgdon, JJ O'Brien, & K Mittleman** Work Unit #M0096-PN.001-1044
A Comparison of the Effects of Circuit Weight Training on Navy Men and Women
(Center Publication, AD# 159-419)

Abstract: Prior to training, women exhibited 52.6% of male upper torso dynamic strength and 56.5% of male lower torso dynamic strength. Both sexes responded in a similar manner to the circuit weight training format. Dynamic muscular strength gains were 13.7% for men and 15.7% for women. Stamina and all indices of relative body composition were unaffected by training. It can be concluded that circuit weight training demonstrates a potential for shipboard application. Current weight training results in the muscular strength gains shown to be necessary for shipboard work performance and it also helps to maintain aerobic fitness in a limited space environment.

85-14 **Helmkamp, JC** Work Unit #M0933-PN.003-0001
The Navy's Occupational Health Information Management System: Epidemiological Research Considerations
(Center Publication, AD# A161-879)

Abstract: Cogent and timely use of occupational health and medical data can contribute to more informed medical and administrative decisionmaking in terms of job placement and the assessment of health risk. Potential epidemiologic research application of the NOHIMS database can be extensive and the unique cross-referencing feature and file structure of NOHIMS may make it possible to track workers by Social Security number through their entire work history and significant medical encounters.

85-15 **Conway, TL & LJ Dutton** Work Unit #M0096.PN.001-1050
Baseline Estimates of Naval Physical Readiness in Male Shipboard and Shore-based Personnel
(Center Publication, AD# A161-879)

Abstract: This study examined physical readiness test performance of San Diego based shipboard personnel, compared the results with similar data from shore-based personnel, and combined the shipboard and shore-based findings to develop baseline estimates of physical readiness in Navy men during the 1983-84 period. Physical readiness test data were collected from 3,979 males stationed aboard 10 Navy ships, and comparisons were made with data from 4,923 males from 22 shore-based commands. Test performance among shipboard personnel was better than that of shore-based men; however, this appeared to be due primarily to age differences (shore-based personnel were five years older than shipboard personnel). The combined ship and shore results indicated that sailors had the most difficulty meeting minimum standards for percent body fat (12% failure), followed by the 1.5-mile run and sit-reach tests (6% and 5% failure, respectively), and had the least difficulty meeting minimum standards on the sit-ups test (2% failure). The overall physical readiness rating was

failed by 19%; the majority of these (70%) failed either the percent body fat test, the 1.5-mile run test, or both. These results suggest that remedial interventions should focus on dietary habits and weight control along with aerobic exercise. Future research should examine life style behaviors and other factors which influence physical readiness so that effective interventions can be developed.

- 85-16 Gray, CG; FC White, RP Crisman, J Wisniewski, D McKirnan, & C Bloor
Chronic Swine Instrumentation Techniques Utilizing the Gore-Tex™ Peritoneal Catheter
(Center Publication, AD# A162-173) Work Unit #MR0000.01.01-6031

Abstract: A major problem in chronically instrumented animals is the development of sepsis. This is frequently due to sinus tract formation or nonsterile catheter handling techniques. Utilizing the GORE-TEX™ Peritoneal Catheter as a skin interface device, our lab has developed procedures and techniques to maintain instrumented pigs for extended periods of time. These devices, combined with special catheter handling techniques, increased the healthy longevity of catheterized animals from three weeks to 10.5 weeks. This interface, as developed for specific requirements, provides a conduit for catheters or instrumentation wires and produces an effective skin seal which has almost eliminated the problem of sinus tract infection. Detailed descriptions are presented of catheter modifications, surgical implantation techniques, sterile catheter sealing and maintenance materials and procedures, and rationale for use of antibiotics. Utilization of these materials and procedures have greatly improved our ability to perform long-term experiments requiring chronic instrumentation and catheterization of pigs.

- 85-17 Helmkamp, JC & PA Cohen
Knee-Injuries and Disability among Enlisted Males in the U.S. Navy
(Center Publication, AD# A160-936) Work Unit #MP58.524.001-0007

Abstract: This study was conducted to investigate the incidence of knee injuries among Navy enlisted personnel that resulted in hospitalization, medical board, and/or physical evaluation board action. The database used was a 1974 cohort, which was followed through 1979. Of 989 males hospitalized (first admission) with any of 6 knee diagnoses, dislocated knees (35.2%), other knee derangements (30.8%), and chondromalacia (19.9%) were the most common diagnoses. Estimated annual incidence rates by age, length of service, and pay grade were calculated and were generally highest for these three diagnoses and indicated significant difference across age, length-of-service, and pay grade groups. Men less than 22 years of age had a significantly greater incidence of chondromalacia than older men.

- 85-18 Palinkas, LA
Health and Performance of Antarctic Winter-Over Personnel: A Follow-up Study
Aviation, Space, & Environmental Medicine (in press)
(Center Publication, AD# A161-773) Work Unit #MR0000.01.01-6035

Abstract: Despite extensive previous research on the health and performance of Antarctic winter-over personnel while they are "on the ice," little is known about the long-term effects of the winter-over experience. Using the records of Navy enlisted men who applied to the Operation Deep Freeze program between 1963 and 1973, the health and service history data available on these individuals at the Naval Health Research Center were examined to determine if incidence rates and performance criteria were significantly different between a group of winter-over personnel and a control group of enlisted personnel who were rated as acceptable by a screening team but who did not winter-over. Results indicated that the overall incidence rate for the winter-over group was significantly lower than the rate for the control group. Also, the winter-over group had significantly fewer first hospitalizations for neoplasms; endocrine, nutritional, metabolic disorders, and diseases of the musculoskeletal system. No differences between the two groups were observed on any of the performance indices. Results suggest that wintering-over does not adversely affect subsequent health and performance of enlisted personnel, and that the screening program has been successful in selecting the best candidates in terms of these criteria.

85-19 Gray, CG

Work Unit #MR0000.01.01-6031

Mechanisms of Bioenergetic Homeostasis during Exercise: A General Model
(Center Publication, AD# A161-678)

Abstract: Studies over the past several years have identified limitations of substrate utilization as a primary determinant of physical endurance capacity. These studies have shown that muscles have a preference and a great capacity to utilize fats as a source of energy. However, the preponderance of these studies has been directed at extending endurance by increasing glucose availability through increasing muscle glycogen stores, or supplementing endogenous glucose supplies during exercise with various forms of sugar containing solutions. Some studies have shown that oral administration of glucose solutions during exercise can improve performance, while prefeeding with glucose decreases endurance performance. However, physical training and adaptation to low carbohydrate diets drive the system toward greater fatty acid oxidation during exercise. The main problem appears to be integration of the observed effects of training and dietary manipulation into a comprehensive solution for maximizing physical endurance under a variety of circumstances.

85-20 Ryman, DH; P Naitoh, & CE Englund

Work Unit #MF58.528.002-0003

**Decrements in Logical Reasoning Performance under Conditions of Sleep Loss and Exercise:
The Factor of Sentence Complexity**
Perceptual and Motor Skills, 1985, 61, 1158-1179

Abstract: Baddeley's Logical Reasoning Test was used, in a series of Sustained Operations (SUSOP) studies involving 100 U.S. Marine Corps enlisted Ss, to assess the effects of sleep loss and long-term physical exercise on the ability to process complex information. The percent correct answers to eight logical reasoning sentence types involving different voice (active vs. passive), use of negatives, and outcome (true vs. false) were collected over three days across three exercise levels and rest conditions in the seven studies and analyzed.

A Multivariate Analysis of Variance (MANOVA) indicated that there were no differences on the baseline day among the seven studies. MANOVAs on the baseline day and throughout the next two continuous work days (CWs) found consistently higher percent correct for the actively worded than for the passively worded sentences. The sleep loss over the two CWs resulted in a significant decrease in percent correct for the statements which had active wording. There were no differences in comprehension between the groups which had different rest conditions (no rest, 3-4h nap, 8h sleep) between the two CWs for any of the sentences; nor was there any recovery from pretest to posttest time periods. Fatigue due to exercise during either CW had no effect on comprehension for any of the sentence types.

The sleep loss effects on comprehension seem to have been due to a lessening of the attention given to those more simple active voice sentences, whereas increased arousal may have been elicited by the more complex passive voice sentences. The increased attention to the passive statements may have overcome the effects of sleep loss.

The present study shows the usefulness of analyzing the Logical Reasoning Test by sentence complexity for indicating selective cognitive changes in the processing of information.

85-21 Griswold, WR & DP Nelson

Work Unit Army 3M672770A870.AQ.306

Detection and Measurement of Multivalent Antigen in the Presence of Low Affinity Antigen-Antibody Complexes
Journal of Clinical & Lab Immunology (in press)

Abstract: Multivalent antigen which is bound to an antibody can be difficult to measure and detect. There are two reasons for this phenomenon: (1) the antibody can mask the antigen so that it cannot react with an antibody in the in vitro test system and (2) complexes of multivalent antigen and antibody can precipitate spontaneously. In this study, solutions to these problems were developed for the special cases in which the antigen-antibody bond is of low affinity. The masking effect of low affinity antibody could be overcome by using a very high affinity antibody ($K=10^{10} M^{-1}$) in the test system. The precipitation problem could be minimized by using fresh or thawed fresh frozen serum. In cases where antigen detection, rather than quantitation, is required, analysis of precipitates may be preferable because antigen is often selectively concentrated in the redissolved precipitates over serum values.

85-22 Hilton, TF & SM Hilton

Work Unit #M0106.PN.001-0002

Factors Contributing to Job Failure among Shipboard Independent Duty Hospital Corpsmen
(Center Publication, AD# A161-737)

Abstract: The two purposes of this study were (1) to determine both the prevalence and causes of job failure among Navy shipboard independent duty technician (IDT) corpsmen and (2) to identify possible methods to prevent or reduce IDT job failure. Data extracted from service records were analyzed for a sample of 58 effective (controls) and 37 ineffective (job failures) IDT corpsmen. The prevalence of job failures among Fleet IDT corpsmen was based on analysis of personnel transfer data during 1982 and 1983. The determination of causes for job failure was based on analysis of service record entries. Identification of ways to prevent/reduce job failures focused on three methods: applicant screening, posttraining job assignment, and on-the-job remedial assistance. Potential screening and assignment criteria were identified by examining four types of background data: demographic characteristics, context and type of duty assignments, training background, and performance history. The feasibility of more timely remedial technical assistance was explored using performance trends. Results indicated the prevalence of IDT job failure was between 5 and 7% per year. Basic causes of performance-related relief were either inspection failures (38%), dishonorable conduct (32%), or problems in dealing effectively with superiors (30%). Expansion of current screening criteria could be justified on the basis of job-failure IDT corpsmen exhibiting significantly more preapplication instances of substandard performance and fewer instances of outstanding performance. Modification of assignment procedures could be justified on the basis of significant prediction of job failure based on IDT class standing. Earlier introduction of remedial technical assistance could be justified on the basis of deteriorating performance trends among ineffective corpsmen as early as three reports prior to job failure.

85-23 Hoiberg, A & C Blood

Work Unit #M0099-PN.01C-0008

Health Risks of Diving in U.S. Navy Officers
Biomedical Research (in press)
(Center Publication, AD# A160-588)

Abstract: The objectives were to compare hospitalization, medical board, and mortality rates of diving-related disorders and stress-induced diseases between U.S. Navy male diving officers ($n = 1,977$) and a matched sample of nondiving officers ($n = 1,973$). Less experienced diving officers had significantly higher hospitalization rates than more experienced diving officers for total admissions, stress-related disorders (primarily alcoholism), and cardiovascular disease. Diving officers had significantly higher hospitalization rates than controls for nervous system diseases and joint disorders, which probably were related either to diving in general or to a particular diving mishap. To ensure the safety and overall excellent health status of diving officers, it is necessary to promote and continue adherence to the procedures developed for safe diving in the U.S. Navy diving community.

85-24 Hoiberg, A & PG Burr

Work Unit #MF58.528.01A-0001

Assessing the Health Risks of Carrier Landings in U.S. Navy Pilots
(Center Publication, AD# A160-928)

Abstract: The purpose of this study was to determine whether or not carrier landings adversely affected the health status of U.S. Navy pilots. Matched on birth year, the three groups ($n = 2,099$ each) included helicopter and fixed-wing pilots who had 150 or more carrier landings and a comparison group of pilots who had less than 26 carrier landings. Results indicated that pilots who had considerable carrier landing experience were at increased risk for ulcers (in helicopter pilots) and back disorders and aviation-related accidental injuries (in fixed-wing pilots), whereas control pilots did not have higher hospitalization or mortality rates for any specific diseases or types of injury. The factors of prior accidents, age, and flying experience seemed to have little, if any, effect on these rates. Subsequent research will be designed to assess the contributions of carrier landings, other operational factors, and demographic variables as correlates of pilots' morbidity, mortality, disability, and attrition.

85-25 Vickers, Jr., RR & LK Hervig Work Unit #MR0000.01.01-6036
Effects of Response Style on the Polarity and Validity of Two-Dimensional Mood Models

Abstract: Unipolar and bipolar two-dimensional models have been proposed to represent mood. This study showed that both models can be derived from the same data depending on whether a response style adjustment is employed. The unipolar and bipolar models defined the same factor space in the sense that mood items occupied the same relative positions in factor space under either model. Both models were equally sensitive to group differences in mood in comparisons between military basic training platoons and between successful and unsuccessful military recruits. Also, each model was as effective as a six-dimensional model for describing these group differences. The findings extend previous evidence that the relative locations of mood items in mood space is an empirical consistency which provides a suitable starting point for mood theories. The choice of a unipolar or bipolar frame of reference to express this consistency may be unimportant, but additional research is needed to confirm this conclusion.

85-26 Marcinik, EJ; JA Hodgdon, & JJ O'Brien Work Unit #M0096-PN.001-1044
A Survey of Physical Training Facilities and Programs Onboard U.S. Navy Vessels
(Center Publication, AD# A160-654)

Abstract: In order to design physical training programs that best utilize existing ship-board recreation resources, a survey of facilities and programs currently operational in the fleet was undertaken. Findings showed that while relatively few ships operated aerobic type conditioning devices (15% of total), weight training equipment use was fairly high (70% of total). An important finding was the total absence of command-sponsored aerobic or strengthening programs for the entire crew. Aerobic programs for select populations (e.g., overweight personnel), however, were found on 20% of the surveyed ships. It can be concluded that while the majority of vessels are fairly well equipped to physically condition crew members, training sites are for the most part underutilized. Findings reveal a need to design effective exercise programs which fully utilize existing recreational resources and address the personal fitness needs of the entire crew.

85-27 Nelson, DP & WR Griswold Work Unit Army 3M463763D807.AH.306
Microcomputer Simulation of Antigen-Antibody Binding at a Fixed Antigen/Antibody Ratio
International Journal of Bio-Medical Computing (in press)

Abstract: Computer simulation techniques were used to define the theoretical nature of the reaction of antigen with antibody at a constant degree of antigen excess. The simulation studies show that binding curves obtained under these conditions have unique features which are determined by antibody affinity, affinity heterogeneity, and the concentrations of antigen and antibody. When analyzed by nonlinear least squares regression, these curves can be used to determine the affinity of antibody in homogeneous and heterogeneous systems.

85-28 Marcinik, EJ; JA Hodgdon, & JJ O'Brien Work Unit #M0096-PN.001-1050
A Comparison of Sprain and Strain Injury Rates during Aerobic/Calisthenic and Aerobic/Circuit Weight Training Programs
(Center Publication, AD# A160-621)

Abstract: A comparison was conducted of sprain/strain (S/S) injuries and subsequent training days lost during aerobic-based programs featuring either calisthenic or circuit weight training programs. Findings showed a significant reduction in the total number of S/S injuries and subsequent no march/no physical training days among aerobic/circuit weight training (A/CWT) participants. Lower incidence of ankle/foot injuries following A/CWT appeared to account for these findings. Results suggest that strengthening programs of this type may have therapeutic value in better preparing recruits for running-induced orthopedic stress. Participation may be particularly beneficial for sedentary individuals or those predisposed to lower extremity trauma.

85-29 Vickers, Jr., RR Work Unit #MR0000.01.01-6036
Effects of Defenses: A Significant Predictor of Cortisol Excretion under Stress

Abstract: Although stress theories assert that psychological characteristics influence illness through their effects on physiological reactions to psychosocial stimuli, it has been

difficult to demonstrate substantial associations to support this contention. Effectiveness of defense (ED) is a clinical assessment based on emotional reaction to stress, disruption of physiological and social functioning, and the ability to mobilize additional defenses to deal with acute, superimposed stress. In six of seven samples studied to date, a significant ED-cortisol correlation was obtained (combined significance, $p < .00006$). The ED-cortisol correlation averaged $r = .41$ for the seven samples, and evidence from two studies suggests that ED is particularly important during high stress. These findings establish ED as a topic worthy of study in connection with psychosocial stress. Future research issues include determining the importance of individual components of the overall ED rating and ascertaining whether ED has other physiological correlations in addition to cortisol.

85-30 **Hoiberg, A** Work Unit #M0099-PN.01C-0008
Longitudinal Study of Health Risks Associated with U.S. Navy Diver Classifications
 (Center Publication, AD# A163-100)

Abstract: The objectives of this longitudinal study were to identify the health risks (hospitalizations) unique to eight U.S. Navy diver classifications ($n = 3,748$) and to determine if the observed age-adjusted frequencies of hospitalizations were significantly higher than expected for all divers. Results indicated that five of the eight diver groups had significantly fewer total hospitalizations than expected while no group had more observed than expected admissions. The only diving-related health risks identified were the higher rates for musculoskeletal disorders in UDT/SEAL divers and symptoms and ill-defined conditions in master divers. The type of dive performed seemed to have more of an influence on health outcomes than extent of diving exposure. The lower than expected frequencies of hospitalizations were explained in terms of physical fitness, diver regualifications, elitism and camaraderie, love of diving, monetary remuneration, and symptom denial.

85-31 **Naitoh, P; CE Englund, & DH Ryman** Work Unit #MF58.528.01B-0003
Circadian Rhythms Determined by Cosine Curve Fitting: Analysis of Continuous Work and Sleep Loss Data
Behavior Research Methods, Instrument, & Computers (in press)

Abstract: This study reports the effect of sleep loss upon circadian rhythm parameters analyzed by the cosine curve fitting (cosinor) method. Rhythm alterations are described in parameters such as reduced circadian rhythm strength, increases in individual variations producing an increase in the 95% confidence limits, and reductions in rhythm amplitude. Subjects worked continuously at tasks for 45 hours with time-of-day cues. Circadian cycles in physiological and mood variables remained intact but rhythms in task performance disappeared. The relationship among oral temperature, mood, and pulse rhythms continued undisturbed during the continuous work period; however, the performance linkage to oral temperature was lost. These findings direct attention to individual differences in susceptibility to continuous work periods and suggest that 24-hour rhythms in many performance and physiological measures are exogenously generated and perhaps more readily responsive to an altered wake/sleep cycle than other endogenously controlled circadian rhythms.

85-32 **Helmkamp, JC & CM Bone** Work Unit #MF58.524.001-0007
Hospitalizations for Accidents and Injuries in the U.S. Navy. III. Time in Assignment and Seniority
 (Center Publication, AD# A161-677)

Abstract: The incidence of accidental injury hospitalization among Navy enlisted men during the period 1977-1979 was analyzed by pay grade and external cause of accident to determine if time in assignment affected an individual's risk of injury and subsequent hospitalization. The highest incidence of injury among shore-based personnel occurred during the first few weeks at a new duty station, then decreased sharply, eventually leveling off after several months. The rates of hospitalization among senior personnel, during the first month at a new duty assignment were greater than the rates occurring after this time interval for junior personnel. The leading external causes of injury (motorcycle, automobiles, and athletics) did not change appreciably over time in the senior pay grades, which suggested that the protective effects associated with seniority and

experience may be largely nullified by the lack of familiarity of personnel with their new work environment and that risks inherent in this environment remain static. When comparing shore and sea environments, time was shown to influence the risk of injury for shore-based but not for sea-based personnel. Results of an analysis of the external causes of accidents revealed that shore-based personnel had significantly elevated risks of hospitalization from athletics, falls, motorcycles, and machineries during the first few weeks in a new job compared with sea-based personnel. After one month, the risks of injury were similar in both groups.

- 85-33 Marciniak, EJ; JA Hodgson, CE Englund, & JJ O'Brien Work Unit #M0096-PN.001-1050
Changes in Fitness and Shipboard Task Performance Following Circuit Weight Training Programs Featuring Continuous or Interval Running
 (Center Publication, AD# A163-110)

Abstract: This investigation compared fitness and work performance changes following participation in circuit weight training regimes featuring either interval or continuous running programs. Results indicated that participation in the circuit weight training/run regimes was associated with differential changes in fitness but not shipboard work performance. Furthermore, the association between training-induced fitness gains and relative improvement in job performance appeared to be specific to the task modeled. Important predictors of criterion job performance included measures of both upper and lower torso muscular strength. Regression analyses yielded the following prediction equation: Composite shipboard performance(s) = $194.15097 - 1.59492 (\text{arm curl}) - .18369 (\text{leg press})$, $r = .74$.

- 85-34 Garland, FC; ED Gorham, CE Garland, & AM Ducatman Work Unit #MF58.524.001-0007
Testicular Cancer in U.S. Navy Personnel
 (Center Publication)

Abstract: There were 2,275,829 person-years at risk in U.S. Navy enlisted white men during 1974-79. This prospective study of occupational risk factors for testicular cancer in this large population demonstrated no excess risk of the disease in Navy active duty white male enlistees compared with the total U.S. population. However, two naval occupations appeared to have a significantly increased risk of the disease: aviation support equipment technicians who had a standardized incidence ratio (SIR) of 6.2 ($p < .001$) and enginemen with a SIR of 2.6 ($p < .05$). These findings suggest that some environmental exposure or activity related to these occupations may be associated with increased risk of testicular cancer.

- 85-35 Vickers, Jr., RR & LK Hervig Work Unit #MR041.01.06A-0002
Predictors of Cold Weather Health Behaviors: A Replication and Extension

Abstract: This study replicated and extended prior findings that the Health Belief Model (HBM) can predict cold weather health behaviors (CWHB). Major findings in a study of Marines in cold weather training were: (1) Perceived efficacy, one component of the HBM, was a weak but reliable predictor of food intake and foot care, but not of water intake. No other HBM component significantly predicted CWHB. (2) No strong, general predictor of CWHB was found in an extensive set of non-HBM beliefs and attitudes which were studied. (3) Weight loss and urine specific gravity assessments indicated minor deficiencies in food and water intake. However, even those men with low reported intakes did not report increased incidence of physical symptoms associated with malnourishment and/or dehydration. (4) Distributing foot powder significantly improved foot care. Modification of health behaviors is unnecessary under the relatively mild weather conditions studied because the minor behavioral deficiencies that occur do not affect well-being. If more extreme conditions make behavior modification desirable in other cold weather settings, modifying rations and supplying foot powder appear to be the most practical means of achieving this end.

<next 5 reports published under: "COMPUTERIZED MEDICAL DATA RESOURCES AS EPIDEMIOLOGICAL TOOLS"

- 85-36 Congleton, MW; W Wilcox, & L Hermansen Work Unit #M0095-PN.001-1053
A Casualty Care Information System for the Fleet Marine Force: Recent Developments

Abstract: Amphibious Task Forces operate in world-wide locations and establish medical

treatment facilities during amphibious operations. Evacuation of casualties requires that accurate medical information be provided to all units. A diminished standard of care occurred during previous operations due to loss of records, incomplete or missing medical data, and incomplete communication of medical information throughout the medical evacuation chain. Previous efforts identified those data elements felt to be required or optional in order to provide the best medical treatment to the casualty at the next higher echelon of the medical organization. An analysis of the current physical model of echelons I, II, and III is reviewed, and a data flow diagram illustrating the flow of information at the medical company level is illustrated. The results of this analysis will be used to design the Fleet Marine Force Combat Casualty Medical Information System. The system is being designed to accommodate health care functions that require information support to troops that are both in garrison and deployed. Data entry functions are being designed to reduce the present medical information recording burden. On the basis of the analysis of the informational handling requirements of field environments and analysis of the hardware and software environment, a prototype system is being developed for field testing at Camp Pendleton, California.

- 85-37 Palinkas, LA Work Unit #M0095.PN.001-1053
Medical Information Systems & Tools for Combat Casualty Epidemiology

Abstract: From an epidemiologic perspective, very little is known about the agent, host, and environment of combat casualties. Such information is particularly important in planning for medical treatment procedures and facilities in a military theatre of operations. Automated medical information systems are viewed as critical for meeting these research and planning needs. An examination of the use of the Marine Corps Medical Inpatient file to describe and analyze the distribution of combat casualties among Marine Corps personnel in Vietnam provides a model of the requirements for data collection and database design in a combat casualty setting.

- 85-38 Holbrook, TL & WM Pugh Work Unit #M0095.PN.001-1053
Epidemiological Methods and Database Design Considerations

Abstract: With the development and implementation of medical information systems, large databases of medical information accumulate which can be used for epidemiological studies. This paper presents a basic description of epidemiological study designs and discusses how these study designs might be applied to databases generated by medical information systems.

- 85-39 Garland, EC & ED Gorham Work Unit #M0095.PN.001-1053
Use of Computerized Medical Data Resources of the Naval Health Research Center for Prospective Studies of Chronic Diseases in the Navy

Abstract: The Naval Health Research Center maintains computerized medical and personnel information files which contain information for approximately 2.5 million active duty Navy and Marine Corps personnel. These have been used to detect unusual occurrences of chronic disease and other health problems in the U.S. Navy. A description of these information resources and the results of a recently completed study of Hodgkin's disease are presented to demonstrate the role of this information in the Navy's occupational, health, surveillance, and epidemiology program.

- 85-40 Helmkamp, JC & CM Bone Work Unit #M0095.PN.001-1053
Computerized Medical Data Resources for Accidental Injury Research in the U. S. Navy

Abstract: The Naval Health Research Center has developed unique capabilities for conducting epidemiologic research and risk assessment of accidental injury hospitalizations through the development of a computerized population-service-medical history file. This file contains information on more than 2,500,000 enlisted members who have been or still are on active duty from July 1, 1965 to the present. The database is updated quarterly and is organized in chronological order by event date and event code. The file contains service history demographic information such as Social Security number, age, sex, race, length of service, pay grade, and education; other data include duty station transfers and occupation. The medical section of the file has information related to hospitalizations, medical boards, physical evaluation boards, and deaths. Data, such as diagnosis, days hospitalized, external cause, and disposition, also are provided. All accident or

injury-related diagnoses, serious enough to require hospitalization, can be identified. The diagnostic and demographic information provided in this database helps support epidemiologic analyses and aids in the calculation of incidence or mortality rates and the identification of high-risk groups.

85-41 McCaughey, BG Work Unit #M0095-PN.001-1047
U.S. Navy Special Psychiatric Rapid Intervention Team (SPRINT)
(Center Publication, AD#A163-116)

Abstract: Catastrophic events cause immediate and long-term psychological distress. Examples of problems seen in military personnel involved in peacetime disasters are the collision between the USS Kennedy and USS Belknap and the sinking of the USCGC Cuyahoga. A group of mental health professionals, called the Special Psychiatric Rapid Intervention Team (SPRINT), has attempted to aid military disaster victims by using the principles of combat psychiatry. The objective of this paper is to describe SPRINT's approach to treating disaster victims and relate some observations made during deployments. The author interviewed personnel who have deployed on SPRINT interventions and those involved in formation of the original team. The author's observations made as SPRINT was conceived also are included. The principles of combat psychiatry used by SPRINT include brevity, immediacy, centrality, expectancy, proximity, and simplicity. Functionally, SPRINT deployments can be divided into six parts: preparation, pre-deployment, deployment, planning with the command, treatment, and memorial services and debriefing. The response to SPRINT's services by many of the survivors, their families, and those in the chain of command has been very enthusiastic. However, scientific studies are needed to document its long-term effectiveness.

85-42 Spinweber, CL Work Unit #s MR041.01.003-0157 and 4101
L-tryptophan Administered to Chronic Sleep-Onset Insomniacs: Late-appearing Reduction of Sleep Latency
(Center Publication, AD# A163-115)

Abstract: The effects of 3 g l-tryptophan on sleep, performance, arousal threshold, and brain electrical activity during sleep were assessed in 20 male, chronic sleep-onset insomniacs (mean age 20.3 ± 2.4 years). Following a sleep laboratory screening night, all subjects received placebo for 3 consecutive nights (single-blind), 10 subjects received l-tryptophan and 10 placebo for 6 nights (double-blind), and all subjects received placebo on 2 withdrawal nights (single-blind). There was no effect of l-tryptophan on sleep latency during the first three nights of administration. On the 4th-6th nights of administration, sleep latency was significantly reduced. Unlike benzodiazepine hypnotics, l-tryptophan did not alter sleep states, impair performance, elevate arousal threshold, or alter brain electrical activity during sleep.

85-43 Naitoh, P & DH Ryman Work Unit #MF58.528.01B-0003
Sleep Management for Maintenance of Human Productivity in Continuous Work Schedules
(Center Publication)

Abstract: As part of a research effort evaluating task performance during sustained operations, three groups of young (early 20s) physically fit, U.S. Marine Corps volunteer subjects (Ss) were evaluated for effects of starting time, exercise, time-on-job, and sleep duration on their task performance. The Ss in the morning group ($n = 22$) started a 45-hour continuous operation at 0800. The Ss in the noon group ($n = 16$) started the continuous operation at 1300, and the midnight group ($n = 16$) at 0000. The 45-hour work period was divided into the first 20-hour continuous workday (CW1), followed by 5-hour break period (which included a 3-hour nap), and then by the second 20-hour continuous workday (CW2). Because of the different starting times, the 3-hour nap times differed for the three groups. One-half of the Ss in each group were randomly assigned to walk on a treadmill for one-half hour every working hour at a speed corresponding to 30% of their maximal aerobic power. The Naval Health Research Center Performance Assessment Battery was used to measure the changes in psychomotor and cognitive efficiency. In this paper, the results of the Simple Reaction Time choice task and the Visual Vigilance task are reported. The four major findings were: (1) The Ss in the noon group showed significantly slower simple reaction and 4-choice reaction times in comparison with the morning and midnight groups. Hence, the starting time of the workday makes a

critical difference in maintaining performance effectiveness. (2) Exercise at 30% maximal aerobic power significantly slowed the reaction time and caused more errors in the simple reaction and 4-choice task times. Postexercise psychomotor task performance was slower and less accurate for exercising as compared with nonexercising Ss. (3) The 3-hour nap was not sufficient to assure continued high performance as compared with performance after an 8-hour sleep. (4) All Ss could maintain the same performance level up to 12 hours during the first workday. These results will be used in developing a sleep management doctrine.

85-44 Johnson, LC, CL Spinweber, SC Webb, & AG Muzet Work Unit #MR041.01.003-0157
Dose Level Effects of Triazolam on Sleep and Response to a Smoke Detector Alarm

Abstract: Thirty-six young adult, male subjects with sleep-onset insomnia were equally divided into placebo, .25 mg and .50 mg triazolam groups to examine the effects of the hypnotic, with particular attention to dose level, on efficacy, sleep stages, and awakening to a smoke detector alarm. On nights 1 and 4 of a 5-consecutive night protocol, a standard home smoke detector alarm was sounded during Stage 2, five minutes after sleep onset, in slow wave sleep (SWS), and at a time of the early morning awakening. The alarm registered 78 dB at the pillow. EEG arousal latency and reaction time to a button press were studied. Failure to awaken to three 1-minute alarm presentations was scored as no response. Both dose levels produced similar reduction in sleep latency, decrease in SWS, increase in Stage 2, and increase in sleep latency. Both dose levels showed a similar sedative effect to the smoke alarm. Fifty percent failed to awaken on night 2 during SWS, and EEG arousal and response latencies were significantly slowed. Some tolerance was seen by night 4. By morning, all subjects were easily awakened on both nights. The .25 mg dose is clearly an effective dose level for both sleep efficacy and sedative effects to outside noise. However, the sedative effects, in some instances, could pose a potential problem.

85-45 Hoiberg, A Work Unit #M0099.PN.01C-0008
Consequences of U.S. Navy Diving Mishaps: Air Embolism and Barotrauma
(Center Publication)

Abstract: The purpose of this longitudinal study was to examine the short- and long-term health effects of an air embolism or barotrauma among 165 U.S. Navy divers who experienced an air embolism ($n = 27$) or barotrauma ($n = 138$) during January 1968 through December 1979. Results identified three deaths because of an air embolism and a physical disability for deafness. Two other divers were hospitalized for ear and hearing problems. The incidence of the barotrauma and the subsequent hospitalization for ear and earing conditions in three divers suggested that the barotrauma was the genesis of these disorders. No relationships between prior admissions and subsequent diving accidents could be established from an examination of diagnoses or proximity of events in time. The loss of three lives to air embolism and the incidence of ear and hearing problems in three divers emphasized the need to further promote adherence to the safety procedures established by the Navy diving community.

85-46 Hoiberg, A & RG Burr Work Unit #MF58.528.01A-0001
Health Profile of U.S. Navy Pilots of Electronically Modified Aircraft

Abstract: This study compared hospitalization and mortality rates of pilots who flew electronically modified aircraft ($n = 1,063$) with an age-matched group of pilots who flew other types of aircraft ($n = 2,126$). Control pilots aged 21-26 had a significantly higher aviation-related mortality rate and hospitalization rate for accidental injuries than pilots of electronically modified aircraft. Rates for accidental injuries among control pilots decreased significantly between the age intervals of 21-26 and 38-44. A significant increase in hospitalization rates with age was noted for cardiovascular disease and alcoholism among control pilots whereas only a slight increase in rates for these conditions was observed for pilots of electronically modified aircraft. Total hospitalization rates between the older two age intervals decreased for these pilots and increased for control pilots. Pilots of electronically modified aircraft, therefore, were not at increased risk for illness or injury because of the aircraft models they primarily flew.

Abstract: The identification of factors associated with psychiatric casualties is critical both for combat casualty care and medical resource management and the safeguarding of the health and well-being of combat personnel long after hostilities have ceased. This paper examines the psychiatric casualties among Marine Corps personnel in Vietnam between 1965 and 1972. The Marine Corps Medical Inpatient file was searched for all first hospital admissions with a diagnosis of mental disorder or combat-related wounds and injuries. The relative risk of a first hospitalization for a psychiatric diagnosis was determined using crude incidence rates based on the population of Marine Corps personnel who served in Vietnam and ratios of psychiatric casualties to wounded-in-action. The crude rates of psychiatric disorders were found to be much higher than those reported in other studies and approximated the casualty rate among U.S. combat troops in Korea (34.3 per 1,000). The relative risk of becoming a psychiatric casualty appeared to increase with age and length of service. Support personnel had much higher psychiatric casualty to wounded-in-action (PC:WIA) ratios than front line infantry or artillery personnel. The years of greatest combat activity also displayed the smallest PC:WIA ratios for the study period.

Abstract: The object of this study was to determine if the risk to health and well-being of personnel who winter-over in Antarctica is related to the station to which they are assigned. Subjects were 327 enlisted Navy personnel who wintered over between 1963 and 1974. A 15-year period from 1965 to 1979 was established for follow-up. Demographic characteristics, total first hospitalizations for unique diagnoses, and performance indicators were examined. Comparisons of these variables were made by each station, by station size (large, small), and by the severity of station environment (based on altitude and mean annual temperature). Comparisons were made of both independent and dependent rates of total first hospitalizations. Dependent rates were based on the total population of enlisted winter-over personnel. Results indicated that there was no relationship between rates of first hospitalization and severity of station environment. When compared with the standard incidence of total first hospitalizations, the personnel assigned to Palmer and personnel at small stations were found to have significantly higher rates than the norm. However, these may reflect Type I statistical errors because of the small sample size. No significant differences were observed on any of the performance indicators in comparisons between stations or by station size and severity of environment. Environment, therefore, appears to have no adverse long-term effect on health and performance.

Abstract: Psychological stress is a normal part of wintering-over in the Antarctic given the unusual living conditions of small groups, the harsh environment, and the prolonged isolation from outside contact. The degree of stress, however, is influenced by different sociocultural factors. Three, in particular, are examined in this paper: (1) those located in the individual personality; (2) those located in the sociocultural backgrounds of station personnel; and (3) those located in the sociocultural systems of the stations themselves. Certain conflicts emerge from the interaction of these influences. The process of social comparison which fosters group homogeneity also generates perceptions of relative control over the social environment and self-esteem. Those people who perceive themselves to be powerless or helpless because they cannot exercise autonomy in either a social or a psychological sense have the greatest difficulty in adjusting to the Antarctic environment. Resources enabling one to deal with similar isolation may be viewed as adaptive in this particular environment. Other processes, such as values, group behavior, and group identity serve to bring together a group of individuals whose sociocultural and personality idiosyncracies are integrated into a cultural form common to the confined or isolated group.

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Exercise-induced Myocardial Capillary Growth in the Spontaneously Hypertensive Rat
Microvascular Research, 1985, 30(2), 185-195
- ENGLUND, CE
The Stresses and Strains of Sustained Operations as a Function of Time-of-Day
In: AD Mangelsdorff (ed), Proceedings, Fifth Users' Workshop on Combat Stress, 10-13 December
1985, Academy of Health Sciences, Ft. Sam Houston, Texas. 1985.
- ENGLUND, CE & GP Krueger
(Special Section) Methodological Approaches to the Study of Sustained Work/Sustained
Operations: Introduction
Behavior Research Methods, Instruments, & Computers, 1985, 17(1), 3-5
- ENGLUND, CE; DH RYMAN, P NALTOH, & JA HODGDON
(Special Section) Cognitive Performance during Successive Sustained Physical Work Episodes
Behavior Research Methods, Instruments, & Computers, 1985, 17(1), 75-85
<Report #84-31, Center Publication, AD# A148-061>
- ENGLUND, CE, DL Reeves, CA Shingledecker, DR Thorne, KP Wilson, & FW Hegge
Unified Tri-Service Cognitive Performance Assessment Battery (UTC-PAB).
JWGD? MILPERF Report No. 85-1, 1985.
- FERGUSON, JC; MS McNALLY, & RF BOOTH
Accidental Injuries among Naval Personnel by Occupation, Duty Status, and Pay Grade
Accident Analysis and Prevention Medicine, 1985, 17(1), 79-86 <Report #81-7, AD# A112-660>
- Garland, CG & FC GARLAND
Diet and Cancer
Western Journal of Medicine, 1985, 143, 662
- Griswold, WR & DP NELSON
Calculation of Monoclonal Antibody Affinity Constants Directly from Antibody Dilution Curves
Immunology Letters, 1985, 9, 15-18 <Report #84-37, AD# A154-802>
- HOIBERG, A
Longitudinal Health Risks among Graduates and Disenrollees from Diving School
Journal of the Society of Occupational Medicine, 1985, 35(1), 30-34
<Report #82-12, AD# A121-113>
- HOIBERG, A & CG BLOOD
Age-specific Morbidity and Mortality Rates among U.S. Navy Enlisted Divers and Controls
Undersea Biomedical Research, 1985, 12(2), 191-203
<Report #84-25, Reprint & Center Publication, AD# A146-032>
- HOIBERG, A
Cardiovascular Disease among U.S. Navy Pilots
Aviation, Space, and Environmental Medicine, 1985, 56(5), 397-402
<Report #84-27, Center Publication, AD# A145-871>

* Names in capital letters are NMRC Staff (current and past).

' 31BERG, A

JOHNSON, LC; MM Mitler, & WC Dement

JOHNSON, LC & CL SPINWEBER

KOLH, D & EKE GUNDERSON

Kurland, EM; LT Kurland, DW Mulder, J Kirkpatrick, & JC HELMKAMP

Krueger, GP & CE ENGLUND

MARCINIK, EJ; JA HOPGDON, & RR VICKERS, JR.

MARCINIK, EJ; JA HODGDON, K MITTLEMAN, & JJ O'BRIEN

MARCINIK, EJ; JA HODGDON, JJ O'BRIEN, & K MITTLEMAN

McCAUGHEY, BG

McCAUGHEY, BG

FALINYEAS, LA

PALINKAS, LA & C COLCOPF

37

Other reports published in 1985 cont.

PALINKAS, LA

Racial Differences in Accidental and Violent Deaths among U.S. Navy Personnel
Military Medicine, 1985, 150(11), 587-592

<Report #84-45, Center Publication, AD# A149-696>

PALINKAS, LA, BM Harris & JS Petterson, A Systems Approach to Social Impact Assessment: Two Alaskan Case Studies. Boulder, Colorado: Westview Press, 1985.

Skinner, HB; MB Wyatt, JA HODGDON, DW Connard, & RL Barrack

<Abstract> Effect of Fatigue on Joint Position Sense of the Knee

In: Transactions of the 31st Annual Meeting of the Orthopedic Research Society, Las Vegas, Nevada, 21-24 January 85. 1985, 10, 223

SPINWEBER, CL

Laboratory Note: Effect on Sleep Latency of Pre-sleep AEP Procedures

Sleep, 1985, 8(1), 68-70

<Report #84-17, Center Publication, AD# A147-620>

Wortman, CB & TI CONWAY

The Role of Social Support in Adaptation and Recovery from Physical Illness

In: S Cohen & SL Syme (eds), Social Support and Health. Orlando, FL: Academic Press, 1985.

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Manuscripts "In press"

ENGLUND, CE; P NAITOH, DH RYMAN, & JA HODGDON

Moderate Physical Work Effects on Performance and Mood during Sustained Operations

Human Factors (in press)

<Report #83-6, Center Publication, AD# A126-532>

HOIBERG, A

Consequences of U.S. Navy Diving Mishaps: Decompression Sickness

Undersea Biomedical Research (in press)

<Report #84-50, 1985 Center Publication, AD# A151-887>

Schneider-Helmert, D & CL SPINWEBER

Evaluation of L-tryptophan for Treatment of Insomnia: A Review

Psychopharmacology (in press)

<Report #84-4, Center Publication, AD# A139-888>

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1985 Center Publications & Reports

CONGLETON, MW; FD GLOGOWER, DM Ramsey-Klee, & AS Robert

Navy Mental Health Information System (NAMHIS): A Psychiatric Application of COSTAR

<Report #84-26, 1985 Center Publication, AD# A158-646>

GARLAND, FC; LD GORHAM, & CF Garland

Hodgkin's Disease in the U.S. Navy

<Report #84-8, 1985 Center Publication, AD# A160-323>

GARLAND, FC; MR WHITE, & GM Seal

Smoking and the Differential White Blood Cell Count as Determined on a Technicon H6000TM

Automated Blood Cell Analyzer

<Report #84-49, 1985 Center Publication, AD# A159-621>

HELMKAMP, JC; SA Forman, MS McNALLY, & CM BONE

Morbidity and Mortality Associated with Exposure to Otto Fuel II in the U.S. Navy 1966-1979

<Report #84-35, 1985 Center Publication, AD# A148-726>

1985 Center Publications & Reports cont.

HELMKAMP, JC; EKE GUNDERSON, & WM Parsons

Functional Concepts for a Shipboard Medical Information System

<Report #84-48, 1985 Center Publication, AD# A151-073>

HODGSON, SA; TL CONWAY, & LI DUTTON

Fitness of Young People Entering the Navy

<Report #84-32, 1985 Center Publication, AD# A151-036>

MARCINIK, EJ

SPARTEN. A Total Body Fitness Program for Health and Physical Readiness

<Report #84-38, 1985 Center Publication, AD# A150-869>

McCAUGHEY, BG; JH Kleiger, AFC Reyes, AC Miller, & HW Nathan

Treatment of Active Duty Vietnam Veterans: Some Clinical Observations

<Report #84-51, 1985 Center Publication, AD# A155-108>

SPINWEBER, CL

Plasma L-tryptophan Levels, Subjective Sleepiness, and Daytime Sleep

<Report #80-25, 1985 Center Report, AD# A162-714>

VICKERS, RP, Jr. & LE HERVIG

Health Behaviors: Empirical Consistency and Theoretical Significance of Subdomains

<Report #84-18, 1985 Center Publication, AD# A152-049>

VICKERS, RP, Jr.; TL CONWAY, PH PAHE, & HW WARD

Within-person Covariation between Mood and Biochemicals

<Report #80-20, 1985 Center Report, AD# A158-196>

VICKERS, RP, Jr. & LE HERVIG

Predictors of Cold Weather Health Behaviors

<Report #84-46, 1985 Center Publication, AD# A151-910>

VICKERS, RP, Jr. & LE HERVIG

Side Effects of Physical Training in Marine Corps Basic Training: A Replication and Extension

<Report #84-47, 1985 Center Publication, AD# A152-109>

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WORK FOR SCIENTIFIC JOURNALS

Editorial input by staff members for 1985 include:

Cari E. Englund, Ph.D.

Associate Editor, Behavior Research Methods, Instruments, and Computers

Thomas Hilton, Ph.D.
LT MSC USNR

Co-editor, Contemporary Social Psychology

Anne Hoiberg, M.S.

Associate Editor, Psychological Reports

Reviewer, Psychology of Women Quarterly

Reviewer, The New York Academy of Sciences

Laverne C. Johnson, Ph.D.

Associate Editor, Electroencephalography and Clinical Neurophysiology

Paul Naitoh, Ph.D.

Cooperative Editor, Educational and Psychological Measurement

Associate Editor, Psychophysiology

Associate Editor, Perceptual and Motor Skills

Executive Editor, International Journal of Psychosomatics

Reviewer, Sleep

Reviewer, Electroencephalography and Clinical Neurophysiology

Cheryl L. Spinweber, Ph.D.

Reviewer, Sleep

Reviewer, Research and Development Committee, VA Medical Center, La Jolla, California

1985 LECTURES AND SCIENTIFIC COLLOQUIA

The Scientific Colloquia continue to provide an opportunity for interaction among the total NHRC staff as well as scientific presentations or special lectures by speakers outside the Center and Navy. Initiated in 1977, the Annual Ardie Lubin Memorial Lecture provides an opportunity to honor Ardie as a scientist and to remember him as a valued colleague and friend.

Visiting lecturers:

25 April 85

"Human Factors in Lifting"

Stephen Legg, Ph.D.
Army Personnel Research Establishment
Farnborough, Hampshire, United Kingdom

24 July

"Influence of Hydration in Body Fluids
On Exercise Performance in the Heat"

Michael Sawka, Ph.D.
U.S. Army Research Institute of Environmental Medicine
Natick, Massachusetts

22 August

"Jet Lag and Shift Work: Influences of Circadian System"

Timothy H. Monk, Ph.D.
Institute of Chronobiology
Cornell Medical Center
White Plains, New York

28 August - Personality Theory Symposium

9:00 AM

"A Social Interaction Approach to Personality"

Robert Hogan, Ph.D.
Chairman, Department of Psychology
University of Tulsa
Tulsa, Oklahoma

1:00 PM

"Assessment of Emotionality in the Context
of a General Model of Personality"

Auke Tellegen, Ph.D.
Professor, Department of Psychology
University of Minnesota
Minneapolis, Minnesota

5 June - 9th Annual Ardie Lubin Memorial Lecture

"The Formal Properties of the Sleep-Wake Interaction"



William Dement, Ph.D., M.D.
Professor and Head,
Stanford Sleep Disorders Center
and Research Laboratories
Stanford, California

85-86 colloquia:

11 September "Studies of Influences of Environmental Factors on Sleep"

Alain Muzet, M.D.
Centre d'Etude Bioclimatiques du CNRS
Strasbourg, France

22 October 85 "Operational Medical Information Systems Research and Development"

Environmental Medicine Department, Code 30
E. K. E. Gunderson, Ph.D., Department Head
Staff: Troy Holbrook, Ph.D., William Pugh, M.A.
LCDR James Helmkamp, MSC, USN
LCDR Michael Congleton, MC, USN

19 November 85 "Chronobiology of Depression"

J. Christian Gillin, M.D., CDR MC USNR-R
Professor of Psychiatry
University of California at San Diego
San Diego, California

17 December 85 "Brain Activity and Selective Information Processing"

Steve Hillyard, Ph.D.
Professor of Neurosciences
University of California at San Diego
San Diego, California

Presentations and Line Briefings during 1985...

Formal reports of research findings were reported at national, international, and regional meetings of scientific and medical societies.

Aerospace Medical Association, San Antonio, Texas, 12-16 May 85

Ms. Hoiberg - "Longitudinal Study of the Health Status of U.S. Navy Combat Pilots"

LT Marcinik - "The Nature and Extent of Sprain/Strain Injuries in Navy Occupational Ratings"

American Anthropological Association, Washington, DC, 4-8 December 85

Dr. Palinkas - "Sociocultural Influences on Psychosocial Adjustment in Antarctica"

American Association for Medical Systems and Informatics; 4th Spring Joint National Congress of the, San Francisco, California, 20-22 May 85

LCDR Congleton - "Computerization of Navy Outpatient Mental Health Clinics"

American Association for Medical Systems and Informatics (Invitation Roundtable) in conjunction with Computer Applications in Medical Care; 9th Annual Symposium, Baltimore, Maryland, 10-14 November 85

LCDR Congleton - "Current Status of Navy Automated Data Processing Mental Health Systems"

American College of Sports Medicine, Nashville, Tennessee, 26-29 May 85

Dr. Hodgdon - "Comparison of Whole Body Electrical Impedance, Body Circumferences, and Skinfold Thicknesses in the Prediction of Lean Body Mass"

LT Crisman - "Whole Body Electrical Impedance as a Method to Assess Body Composition" (with LT Lawlor and Dr. Hodgdon)

American College of Sports Medicine; Southwest Conference of the, Las Vegas, Nevada, 9 November 85

Mr. Yeager - "Changes in Plasma Volume and Osmolality during Heated Immersion in Man"

American Psychiatric Association, Navy Seminar, Dallas, Texas, 18 May 85

CAPT McCaughey - "Treatment of Active Duty Vietnam Veterans: Some Clinical Observations"

American Psychological Association, Los Angeles, California, 23-27 August 85

Ms. Hoiberg - "Status of Women in the U.S. Military"

Ms. Hoiberg - Chairperson, Open Forum on "Women and Minorities in the Military"

LT Kobus - "Visual Event Related Potential Associated with Detection and Recognition in a Simulated Sonar Task" (with Dr. Santoro and Dr. Sturr)

LT Neri - "Detection of Various Color Combinations under Different Chromatic Ambient Illuminations" (with Dr. Luria and LT Kobus)

Dr. Englund - Chairperson, Symposium on "Chronopsychology: Circadian System's Impact on Well-Being, Mood, and Performance"

Dr. Englund - "Mood, Attitude, and Physical Symptoms as a Function of Time-of-Day during Continuous Work"

Dr. Englund - (Poster Session) "The United Tri-Service Cognitive Performance Assessment Battery (UTC-PAB): The Battery"

Dr. Englund - (Poster Session) "Cognitive Performance during Successive Sustained Physical Work Episodes"

Dr. Spinweber - "Cognitive Effects of Sleeping Aids: Findings from Sleep Laboratory Studies"

LT Hilton - Participant, Panel Discussion on "Enhancing Links Between Research and Practice in Industrial/Organization Psychology" (with Dr. Murphy and Dr. Cleveland (Co-chairpersons), Dr. Billings, Dr. Hirsch, and Dr. Spool)

Biochemistry of Exercise; Sixth International Symposium on the, Copenhagen, Denmark, 12-15 June 85

CDR Gray - (Poster Session) "Mechanisms of Bioenergetic Homeostasis during Exercise: A General Model"

Evaluation 1985, Toronto, Canada, 17-19 October 85

LT Hilton - "Context Constraints on the Interpretation of Evaluation Outcome"

Federation of American Societies for Experimental Biology; 69th Annual Meeting of, Anaheim, California, 21-26 April 85

LT Marcinik - "Static and Dynamic Length Measures as Determinants of Shipboard Work Performance"

Hawaii International Conference on System Sciences (HICSS); 18th Annual Meeting of, Honolulu, Hawaii, 2-4 January 85

LCDR Congleton - "The Fleet Marine Force Combat Casualty Care Medical Information System: An Overview"

LCDR Congleton - Track Coordinator, Session on "Fleet Medical Informatics"

LCDR Congleton - "Dental Aspects of Combat Casualty Care" (for M. C. Diehl, Naval Dental Research Institute, Great Lakes, Illinois)

Mr. Pugh - "Design Concepts of the Operational Medical Information System (OMIS)"

LCDR Helmkamp - "Preliminary Specifications for a Shipboard Medical Information System"

Dr. Garland - "Selection of a Field Severity Scoring System for the Navy Operational Medical Information System"

International Symposium of Night- and Shift-Work, 7th; Igles, Austria, 18-21 September 85

Dr. Naitoh - "Sleep Management for Maintenance of Human Productivity in Continuous Schedules" (with Mr. Pyman)

Dr. Naitoh - Chairperson, Session on "Shift Systems and Technological Innovation"

Dr. Naitoh - "Intervention Studies and Measures to Alleviate Shift Work" (Introductory Remarks)

MUMPS Users Group; 14th Annual Meeting of, Chicago, Illinois, 10-14 June 85

Mr. Pugh - "Developing Technical Documentation Standards for NOHIMS"

Pacific Southwest Safety and Health Workshop/Seminar; 9th Annual, San Diego, California, 24 April 85

Dr. Gunderson - "Occupational Health Information Systems"

Sleep Research Society, Seattle, Washington, 9-12 July 85

Dr. Spinweber - "Triazolam (.25 and .5 mg): Effects on Memory, Performance, and Subjective Mood"

Dr. Johnson - "Dose Level Effects of Triazolam on Sleep and Awakenings to a Smoke Detector Alarm"

Undersea Medical Society, Long Beach, California, 11-14 June 85

Ms. Hoiberg - "Assessing the Short- and Long-term Health Effects of Decompression Sickness among U.S. Navy Divers"

Western Psychological Association, San Jose, California, 18-21 April 85

Dr. Spinweber - "Triazolam (Halcion): Effects of Awakenings to a Smoke Detector Alarm"

Dr. Spinweber - "Sleep Disorders: Diagnosis and Treatment"

LT Hilton - "Whatever Happened to Group Dynamics? Dissonance Theory? Attitude Change Theory? and Social Ecology?" (with Drs. Zander, Aronson, Miller and Wicker)

LT Hilton - Chairperson, Invited Address by Dr. Aronson "Applying Social Psychology: From the Laboratory to Public Policy"

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Reports read, discussions led, or presentations made at other congresses, centers, and local community media.

Benzodiazepines and Memory Conference, San Diego, California, 24-25 January 85

Dr. Spinweber - "Dose Level Effects of Triazolam on Memory"

DOD Human Factors Engineering Technical Advisory Group (HFE TAG) Meetings:

San Antonio, Texas, 6-9 May 85

Dr. Englund - "Chemical Defense and Sustained Operations Programs"

San Diego, California, 5-7 November 85

Dr. Englund - "Sustained Operations Programs"

Fleet Air Introduction Liaison Survival Aircrew Flight Equipment Program Working Meeting; 20th Annual, Naval Air Station, Miramar, San Diego, California, 11-15 February 85

Ms. Hoiberg - (Poster Session) "Just How Healthy are U.S. Navy Pilots and Aircrew Personnel?"

LT Marcinik - "Aerobic/Calisthenic and Aerobic/Circuit Weight Training Programs for Navy Men"

Fleet (CINCPACFLT) Recreation Coordinators' Conference, San Diego, California, August 85

LT Marcinik - "Development of the Navy's SPAPTEN Shipboard Fitness System"

Fleet Physical Fitness Coordinators, Pier 2 NAS NI Auditorium, San Diego, California, 23 May 85

LT Crisman - "Navy Fitness for Life Month: Adaptive Responses of Exercise Physiology; the Myths, the Realities"

LT Marcinik - "A Preview of the Navy's New Physical Readiness Test"

Joint (Tri-Service) Technology Coordinating Group for Combat Casualty Care Program Review, (Col T. Camp, USA, Chairman), San Diego, California, 22-23 April 85 (Hosted by NHRC)

Dr. Gunderson - "Operational Medical Information System/Fleet Marine Force Combat Casualty Information System"

Mr. Pugh - "An Overview of the OMIS Program"

Dr. Palinkas - "Combat Casualty Information System"

Joint (Tri-Service) Technology Working Group on Combat Casualty Care, San Diego, California, 15-16 July 85 (Hosted by NHRC)

Dr. Gunderson - "Hardware/Software Standards for Field Medical Information Systems"

LCDR Congleton - "The Fleet Marine Force (FMF) Combat Casualty Care Medical Information System"

Joint (2nd Tri-Service) Technology Working Group on Combat Casualty Care, Fort Detrick, Maryland, 5-6 November 85

Dr. Gunderson - "Navy Fleet Marine Force (FMF) Requirements"

LCDR Congleton - "Recent Developments in the FMF Combat Casualty Care Medical Information System"

Joint (Tri-service) Working Group to Determine Drug-Produced Decrements (JWGD3) Quarterly Meetings:

San Antonio, Texas, 1-4 April 85

Dr. Englund - "NHRC Chemical Defense Program"

San Diego, California, 25-26 July 85 (Hosted by NHRC)

Dr. Englund - "Tour of Building 315 Laboratory"

I-Marine Amphibious Force (I-MAF) Combat Casualty Care Symposium; 1st Annual, Camp Pendleton, California, 10-12 April 85 (Hosted by the First FSSG)

LCDR Congleton - "FMF Combat Casualty Care Medical Information System: An Overview"

Mr. Pugh - "Operation Medical Information System (OMIS) Concept"

Minority Science and Biomedical Research Association (MSERA) Colloquium for the Sciences, San Jose, California, 11 April 85

Mr. Gomez - "Modification of the Water Platform for REM Deprived Mice"

National Academy of Sciences, Washington, DC, 13 November 85

Dr. Gunderson - "NRC Committee on Epidemiology and Veterans' Follow-up Studies"

NATO Panel VIII Research Study Group 4: Physical Fitness with Special Reference to Military Forces, London, United Kingdom, 9-13 September 85

Dr. Hodgdon - "Cross Validation of the Body Composition Equation of Durnin, McKay, and Webster on Samples of U.S. Navy and Army Personnel" (with CPT Fitzgerald, U.S. Army Institute of Environmental Medicine)

Navy Environmental Health Center (NOHIMS Evaluation Team), Norfolk, Virginia, 23-24 January 85 (at NHRC)

Mr. Pugh - "Demonstration of the NOHIMS Program"

Naval Surface Force:

U.S. Pacific Fleet Command Fitness Coordinator Workshop, San Diego, California, 14 January, 21 February, and 18 March 85

LT Marcinik - "Physiology of Diet and Exercise"

U.S. Pacific Fleet Command Fitness Coordinator Workshop, San Francisco, California, June 85

LT Marcinik - "Physiology of Diet and Exercise"

NOHIMS End-User Demonstration Conference, San Diego, California, 26-28 February 85 (Hosted by NHRC)

Opening Remarks by Mr. Schultz (OP-45)

Mr. Pugh - "NOHIMS Presentations" (with hands-on training and site visit to NAS North Island)

Mr. Hermansen - "Briefing" (with site tour of NAS North Island Naval Medical Clinic)

Closing Remarks by LCDR Still (Naval Medical Command, Code 242)

Swine in Biomedical Research, College Park, Maryland, 17-20 June 85

CDR Gray - "Mechanisms of Bioenergetic Homeostasis during Exercise: A General Model"

CDR Gray - (Poster Session) "Chronic Swine Instrumentation Techniques Utilizing the Gore-Tex Peritoneal Catheter"

Users' Workshop on Combat Stress; Fifth, Fort Sam Houston, Texas, 10-13 December 85

Dr. Englund - "The Stresses and Strains of Sustained Operations as a Function of Time of Day"

VA Health Care for Returning Prisoners of War Conference, San Diego, California, 12-14 March 85

Dr. Nice - Participant, Session on "Social and Occupational Reintegration"

Dr. Gunderson - "Long-Term Health Care"

William C. Menninger Memorial Conference: Armed Forces Military Psychiatry Course "Current Trends in Military Psychiatry", Topeka, Kansas, 15 May 85

CAPT McCaughey - "Treatment of Active Duty Vietnam Veterans: Some Clinical Observations"

Mass Media:

TV Show: "The Incredible Women of San Diego", San Diego, California, 22 September and 24 October 85

Ms. Hoiberg (served as hostess and interviewed Ms. Beverly Eddinger) - "Habitability and Interior Design on U.S. Navy Ships"

Gannett News, Washington, DC, 12 September 85

Dr. Englund - (Interviewed by Ms. Ellen Hale) "Chronopsychology"

Mass Media cont.

National Public Radio (WOI), Ames, Iowa, 4 October 85

Dr. Englund - (Interviewed by Mr. Paul Bundy) "Chronopsychology"

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Presentations of research findings were made at colloquia and meetings at **medical colleges and universities.**

California State University (Annual Symposium on Worker Productivity), Fullerton, California, 6 February 85

LT Hilton - Participant, Session on "A Systems Theory Approach to Job Analysis"

Claremont Graduate School (Psychology Department), Claremont, California, 24 January 85

LT Hilton - "Conducting Research in the Military and Federal Government"

Institut für Arbeitsphysiologie, Dortmund, West Germany, 23 September 85

Dr. Naitoh - "Thermal Regulation in Continuous Work"

Mesa College (Evening Symposium), San Diego, California, 1 September 85

Dr. Englund - "Overview of Sustained/Continuous Work, Shiftwork, and Biological Rhythms Research"

Naval Education and Training Support Center, Pacific-NTC Detachment (OPNAV Task Force on Independent Duty Hospital Corpsman Personnel Qualification Standards (PQS)) San Diego, California, 14 August 85

LT Hilton - "Independent Duty Hospital Corpsman Study" (with Dr. Nice)

San Jose State University (Extension Class on Human Factors in Aviation), San Jose, California, 18 April 85

Dr. Naitoh - "Sleep Deprivation and Performance"

University of California (Dr. Culver and Dr. Guirgis), Department of Community and Environmental Medicine, Irvine, California, 9 August 85

LCDR Helmkamp - "NOHIMS Database Structure" and "Cancer Registries" (with Dr. Gunderson)

University of Missouri, Columbia, Missouri, 14-17 March 85

CDR Gray - "General Model of Bioenergetic Homeostasis"

University of San Diego (Anthropology Department), San Diego, California

5 March 85, Dr. Palinkas - "Quantitative Methods in Anthropological Fieldwork"

3 June 85, Dr. Palinkas - "Small-scale Social Systems"

Washington State University, Veterinary School of Medicine, Pullman, Washington, 17-22 March 85

CDR Gray - "General Model of Bioenergetic Homeostasis"

LT Crisman - Seminar, "Surgical and Aseptic Techniques to Implant Indwelling Catheters with a Core-Tex Interface Device. Histological Response to the Interface Device and Feasibility for Long-term Use in Exercising Swine"

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Research results were reported and discussions led with hospital staff at these hospitals and clinics.

Naval Hospital, Long Beach, California

- 29 January 85, Presentation to Commanding Officer
LT Hilton - "Results of Organization Climate Survey" (with Dr. Nice)
- 13 February 85, Presentation to Military and Civilian Employees
Dr. Nice - "Results of Staff Satisfaction Survey"

Naval Hospital, San Diego, California

- 11 October 85, In-service Training
Mr. Gomez - "Basic Life Support Techniques"
- 2 December 85, Presentation to Psychiatry Department, Residents' In-service Training
Dr. Spinweber - "Sleep Disorders: An Overview of Diagnosis and Treatment"

Naval Medical Clinic

- 13 February 85, Presentation to Officer in Charge and Staff, El Toro, California
LT Hilton - "Results of Organization Climate Survey"
- 13 May 85, Presentation to Behavioral Weight Control Program, Occupational Health/Preventive Medicine Department, Naval Station, San Diego
Dr. Hodgdon - "Exercise and Body Composition Change"

Naval Training Center, San Diego, California

- 3 April 85, Presentation to Outpatient Clinic (In-service Training)
Dr. Spinweber - "Sleep Disorders: An Overview of Diagnosis and Treatment"
- 4 April 85, Presentation to Mental Health Unit (In-service Training)
Dr. Spinweber - "Sleep Disorders of Young Adults"

Navy Alcohol Rehabilitation Center (Presentation to Staff), San Diego, California, 7 February 85

- LT Marcinik - "Impact of Aerobic/Circuit Weight Training on Parameters of Fitness"

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Line Briefings:

Tri-Service

Armed Services Biomedical Research Evaluation and Management Committee, San Diego, California, 22 April 85

- LCDR Congleton - "ASBREM Briefing"

Joint Working Group to Determine Drug-produced Decrements (JWGD3)

- 17 October 85, Annapolis, Maryland
Dr. Englund - "Chemical Defense Quarterly Status Report"
- 18 October 85, Level III TAG Meeting, Silver Spring, Maryland
Dr. Englund - "Brief on Tri-Service Cognitive Performance Assessment Battery"

DEPARTMENT OF DEFENSE

Department of Defense Physical Fitness Committee, The Pentagon, Washington, DC, 6 March 85

- Dr. Hodgdon - "Body Composition as it Relates to Health and Job Performance"

Department of Defense Physical Fitness Committee, U.S. Air Force Academy, Colorado Springs, Colorado, 20-23 August 85

- Dr. Hodgdon - "Setting of Health-related Limits for Body Composition for U.S. Navy Personnel"

Office of the Assistant Secretary of Defense (Health Affairs) (Dr. Mestrovich; Col Lyons and Staff), Falls Church, Virginia, 7 November 85

- Dr. Gunderson - "Demonstration of FME Prototype"

U. S. AIR FORCE

USAF DEERS Program Office (Col Lyons), Falls Church, Virginia, 8 November 85

LCDR Congleton - "FMF Combat Casualty Care Medical Information System"

U. S. ARMY

Aberdeen Proving Grounds (CPT Radi), Maryland, 2 May 85 <at NHRC>

Mr. Hermansen - "NOHIMS Briefing" and Demonstration

U.S. MARINE CORPS

Camp Pendleton Line Officers, Camp Pendleton, California, 16 April 85

LT Crisman - "Chemical and Biological Warfare Research and Liaison Needs" (with Mr. Yeager and LtCol Comaratta)

First Marine Division (BGen Stackpole, III), Assistant Division Commander, and (Col Hessel), Division Assistant Chief, Chief of Staff, G-4, Camp Pendleton, California, 3 June 85

Dr. Spinweber - "Briefing on Special Forces Study"

Fleet Marine Force (FMF) Field Service Medical School (Capt Roper), Commanding Officer, Camp Pendleton, California, 20 February 85

LCDR Congleton and Mr. Pugh - "Efforts to Develop Information System for Operational Environments"

LCDR Helmkamp - "Operational Medical Information System (OMIS) Brief"

FMFLANT Force Surgeon (CAPT Bercier), Norfolk, Virginia, 26 April 85

CAPT McCaughey - "Combat Casualty Care Medical Information Systems"

FMF PAC Force Surgeon (Capt McAllister), Camp Smith, Honolulu, Hawaii, 3 January 85

Mr. Pugh - "Development of the FMF Combat Casualty Care Information System"

LCDR Congleton - "FMF Combat Casualty Care Medical Information System"

Headquarters, U.S. Marine Corps (Medical) (RADM Summitt), Medical Officer of the Marine Corps, Arlington, Virginia, 7 November 85

Dr. Gunderson and LCDR Congleton - "Fleet Marine Force (FMF) Combat Casualty Care Medical Information System"

I-Marine Amphibious Force (I-MAF)

6 June 85, (Maj Dudnick) Information Systems Management Officer, Camp Pendleton, California
LCDR Congleton - "FMF Combat Casualty Care Medical Information System"

10 October 85, I-MAF Air Wing Group, Flight Surgeon and Staff, El Toro, California
LCDR Congleton - "FMF Combat Casualty Care Medical Information System"

Marine Corps Liaison Officer (Maj Bouldry) Naval Ocean Systems Center, San Diego, California, 30 September 85

Dr. Englund - "Brief" and Tour of Laboratory

Operation RDMF-4 (CAPT Rowley), Executive Officer, Operation RDMF-4, and Head, Division of General Surgery, Naval Hospital, San Diego, California, 30 May 85

LCDR Congleton - "FMF Combat Casualty Care Medical Information System"

U.S. NAVY

Naval Amphibious Base, BUD/S (CDR Steffins), Director, (LCDR Anderson), Assistant Director, Instructors and Participating Class of "Hell Week", Coronado, California, 24 April 85

LT Crisman - "Presentation of 'Hell Week' Observations at Coronado"

Naval Biodynamics Laboratory (CAPT Biersner), Commanding Officer, Michoud Station, New Orleans, Louisiana, June 85

CDR Dean - "R&D Management Issues"

Naval Environmental Health Center, Norfolk, Virginia

23-24 January 85, (CAPT Bellanca), Commanding Officer, and (Dr. Randall), Technical Director
<at NHRC>

Dr. Gunderson - "Evaluation of NOHIMS"

2 April 85, (CAPT Bellanca, LCDR Ducatman, Dr. Randall)

Dr. Garland - "Hodgkin's Disease and Testicular Cancer in Naval Personnel"

6 June 85, (CDR Allen), NOHIMS Project Manager <at Washington, DC>

Dr. Gunderson - "Review of NOHIMS Status"

7 June 85, (CAPT Bellanca, Dr. Randall, and NEHC professional staff)

Dr. Gunderson - "Medical Data Resources at NHRC"

26-28 August 85, (CAPT Bellanca, Dr. Randall, and NEHC professional staff)

Dr. Gunderson - "Medical Data Resources at NHRC/Shipboard System and SNAP II Requirements"

26 September 85, (CAPT Bellanca), Commanding Officer

LCDR Helmkamp - "Hearing Conservation-related Epidemiologic Research Activities using NOHIMS and NHRC Inpatient Files"

Naval Hospitals:

26 April 85, (Department of Psychiatry), Portsmouth, Virginia

CAPT McCaughey - "Navy Mental Health Information System"

1 May 85, (Department of Psychiatry), Bethesda, Maryland

CAPT McCaughey - "Navy Mental Health Information System"

30 May 85, (CAPT Ridenour), Psychiatry Department, San Diego, California

LCDR Congleton - "Naval Mental Health Information System"

1 and 5 August 85, (CAPT Rowley), Head, Division of General Surgery, San Diego, California

LCDR Helmkamp - "Combat Casualty Medical Information/RADMUE" (with LCDR Congleton)

Naval Medical Command, Washington, DC

5 June 85, (CAPT Nelson), MEDCOM-02

Dr. Gunderson - "Medical Data Resources at NHRC"

17 October 85, (CAPT Hooper), Director, Surface Medicine, NAVMEDCOM-22 <at NHRC>

Dr. Gunderson - "OMIS/Fleet Marine Force Systems"

Naval Medical Command Southwest Region (RADM Sears), Commander, San Diego, California, 24 October 85

Dr. Hodgdon - "Body Composition: Measurement and Standards"

Naval Medical Data Services Center, Bethesda, Maryland

18 March 85, (CDR Lambert), Commanding Officer <at NHRC>

Dr. Gunderson - "Operational Medical Information System (OMIS)"

25 March 85, (CDR Lambert), Commanding Officer <at NHRC>

Mr. Pugh - "NOHIMS and OMIS Brief"

LCDR Congleton - "FME CCMIS Component of OMIS"

Naval Medical Research and Development Command, Bethesda, Maryland

12 January 85, (CAPT Kelly), Commanding Officer <at NHRC>

Mr. Hermansen - "NOHIMS Briefing" and Site Tour

12 February 85, (CAPT Kelly), Commanding Officer <at NHRC>

LCDR Congleton - "FME Combat Casualty Care Medical Information System"

Mr. Pugh - "NOHIMS at NHRC" and "Demonstration of NOHIMS at the Branch Medical Clinic, NAS North Island"

LCDR Helmkamp - "OMIS/NOHIMS Brief"

Naval Medical Research and Development Command, Bethesda, Maryland, cont.

- 28 February 85, (CDR Truman), Program Manager <at NHRC>
LCDR Helmkamp - "Epidemiological Analysis of Navy Occupational Groups and Environments"
- 4 & 6 March 85, (CAPT Furry), Executive Officer <at NHRC>
Dr. Gunderson - "Department Programs"
- Mr. Hermansen - "NOHIMS Briefing" and Site Tour
- 30 April 85, (CAPT Furry), Executive Officer and (Mr. Pulnar), IR Coordinator
CAPT McCaughey - "Internal Review"
- 2-3 May 85, Naval Special Forces Workshop (NHRC, NMRDC and OP86Z)
LT Crisman - "Discussion of Naval Special Warfare and Bio-Medical Research Support Needs" and "Presentation of 'Hell Week' Coverage"
- 20 May 85, (CDR Contreras), Program Manager
Dr. Gunderson - "Department Program Review"
- 23-25 July 85, (LCDR Banta), Program Manager <at NHRC>
- Ms. Holberg - "Age-specific Morbidity among Naval Aviators"
- Dr. Hord - "Overview and Present Status of the Neurometric Program"
- Dr. Hodgdon - "Health and Physical Readiness Research" and "Special Forces Research Plans"
- 23-24 October 85, (CDR Truman), Program Manager <at NHRC>
Dr. Gunderson - "Program Review"

Naval Military Personnel Command (CDR Stebbings), Head, Health and Physical Readiness Program N-6H, Naval Annex, Washington, DC

- 5 March 85, Dr. Hodgdon - "Relationships between Body Composition, Health, and Job Task Performance"
- 13 June 85, Dr. Nice - "Health and Physical Readiness Program"
- 24-25 July 85, Ms. Holberg - "Obesity and Health among U.S. Navy Personnel" <at NHRC>
- LCDR Helmkamp - "Medical Population and Service Files"
- Dr. Hodgdon - "Health and Physical Readiness Research" and "Special Forces Research Plans"

Naval Safety Center, (CAPT Barbee and CAPT Cogle), Norfolk, Virginia, 30 September 85

- LCDR Helmkamp - "Analysis of Serious Accidents in Navy Active Duty Personnel"

Naval School of Health Sciences (Health Science Education and Training Command Task Force), San Diego, California, 26-28 June 85

- LT Hilton - "Independent Duty Hospital Corpsman Training and Certification"

Naval Weapons Center, (Dr. Schaniel, Dr. Royce, Dr. Gillespie, and Dr. Homer), China Lake, California, 29 October 85

- Dr. Garland - "Cluster Analyses of the Low White Blood Cell Count Study"

Navy Air Rework Facility (CAPT Monroe), NAS North Island, San Diego, California, 28 March 85

- Mr. Pugh - "Demonstration of NOHIMS at NARE Safety Office"

Navy Personnel Research and Development Center (CAPT Elledge), Commanding Officer, San Diego, October 85

- CDR Dean - "R&D Management"

Office of Chief of Naval Operations, Washington, DC

- 1 March 85, (Dr. Idar), Recruit Training Advisor, Op-01
Lt Marciniak - "A Review of Physical Training Studies Conducted by NHRC"
- 8 November 85, (CAPT Tunko, CDR Finsk and CDR Kunkle) OP-093
Dr. Gunderson - "Shipboard Data Processing Requirements"

Office of Chief of Naval Operations, Washington, DC, cont.

November 85, (Dr. Carroll), Director, RDT&E Studies, OP-01B7
CDR Dean - "NHRC Overview"

Office of Naval Research (Dr. Lester and Dr. Majde), Washington, DC, 16-17 January 85 <at NHRC>

Dr. Gunderson - "Medical Data Resources at NHRC"

Operation Team Spirit 1985, Assistant Force Surgeon (CAPT Danziger), San Diego, California, 29 April 85 <at NHRC>

LCDR Congleton - "Fleet Marine Force Combat Casualty Care Medical Information System"

Recruit Training Command, San Diego, California

4 February 85, (CAPT French), Commanding Officer
LT Marcink - "Evaluations of Physical Training Programs during Recruit Basic Training"

27 March 85, (LCDR McCallum), Director of Technical Training
LT Marcink - "Sprain/Strain Injuries Incurred during Recruit Basic Training"

September 85, (CAPT French), Commanding Officer
CDR Dean - "NHRC Overview"

USS INGERSOLL (DD 990) (CAPT Amerau), Commanding Officer, September 85

CDR Dean - "Medical R&D Needs in the Fleet"

USS MERRILL (DD 976) (CAPT Newman), Commanding Officer, August 85

CDR Dean - "Operational Medical R&D Needs"

USS NEW JERSEY (BB-62) (CAPT Millikan), Commanding Officer; (COMO Toney), Asst Chief of Staff, Naval Surface Force, U.S. Pacific Fleet, Coronado, California; and (Mr. Allen), Chairman, President's Council on Physical Fitness and Sports, Washington, DC; Naval Station, Long Beach, California, 10 January 85

LT Marcink - "Effects of Exercise Intervention on Performance and Job-related Attitudes"

Uniformed Services University of the Health Sciences, Bethesda, Maryland

26 September 85, (LCDR Spolnicki), USUHS Instructor and Future Training Coordinator for NOHIMS
<at NAS North Island and NHRC>
Mr. Hermansen - "Training Programs for NOHIMS Site Managers"

3 May 85, (LCDR Henderson)
CAPT McCaughey - "Casualty Databases"

PROGRAM BRIEFINGS

Program Briefing "CHEMICAL DEFENSE PROGRAM" (to command/organization) by:

Dr. Englund - "Chemical Defense Program":

Brooks Air Force Base, (Col Alter), Chief Chemical Defense Division, Aerospace Medical Division/R&TK, San Antonio, Texas, 11 December 85

Marine Corps Recruit Depot, San Diego, California
19 September 85, (LtCol Spangler), Assistant G3
14 November 85, (Maj Mitchell), S3
5 December 85, (Maj Aguilar), G3 Staff

Navy Personnel Research and Development Center, San Diego, California
26 September 85, (Ms. McTaggart), Chemical Defense Training Project
23 December 85, (Dr. Robinson and Dr. Van Kekerix), Chemical Defense Training Project

Program Briefing "INDEPENDENT DUTY CORPSMEN STUDY" (to command/organization) by:

Dr. Nice and LT Hilton - "INDEPENDENT DUTY CORPSMEN STUDY: Interim Results of Study"

- 7 June 85, (RADM Eske), CINCPACFLT Fleet Surgeon and (CDR Bumgardner), SUBPAC Force Medical Officer, Pearl Harbor, Hawaii
- 13 June 85, (CDR Windham) MED-552, (CAPT Scott) MED-21, (CAPT Rows) OP-293 and staffs, Washington, DC
- 14 June 85, (CAPT Georges), Commanding Officer, Health Sciences Education and Training Command, Bethesda, Maryland
- 18 June 85, (RADM Zimble), CINCLANTFLT Fleet Surgeon; representatives from SUBLANT and SUPPLANT, Force Medical Officers; and (CAPT Blais), Military Sealift Command, Norfolk, Virginia

Dr. Nice and LT Hilton - "INDEPENDENT DUTY CORPSMEN STUDY: Final Results of Study"

- 27 October 85, COMNAVSURFPACMED, San Diego, California
- 31 October 85, (RADM Zimble), CINCLANTFLT Fleet Surgeon and (CAPT Houk), Commanding Officer, Naval Medical Research and Development Command, Bethesda, Maryland
- 31 October 85, Executive Officer and Staff, Health Sciences Education and Training Command, Bethesda; and Executive Officer, Naval School of Health Sciences Bethesda, Maryland
- 1 November 85, (CAPT Scott) MED-21, (CAPT Hooper) MED-22, Washington, DC
- 5 November 85, CNO Task Force on Independent Duty Corpsmen, Washington, DC
(representatives from Codes MED-542, MED 48C/OP092E, MED-5311, MED-5315, HSETC, NMPC-487C, OP-152C9, OP02, OP093E, OP933G1, OP939C, OPS39, OP939F, I.G, Special Assistant, NSHS, Bethesda, Maryland)
- 6 November 85, (RADM Cassels) COMNAVMECOM, (CAPT Nelson) MED-02, and (CAPT Holl) MED-05, Washington, DC
- 7 November 85, (CAPT Seeley), SUBLANT Force Medical Officer, and (CDR Berry), SUBLANT Force Medical Officer, Norfolk, Virginia
- 8 November 85, Commanding Officer and Staff, Naval School of Health Sciences, Portsmouth, Virginia
- 8 November 85, Commanding Officer, Naval Undersea Medical Institute, Portsmouth, Virginia
- 16 November 85, Commanding Officer, Naval School of Health Sciences, San Diego, California
- 17 November 85, (CAPT Hauser), SUBPAC Force Medical Officer, San Diego, California
- 20 November 85, (RADM Eske), CINCPACFLT Fleet Surgeon, and (CDR Bumgardner), SUBPAC Force Medical Officer, Pearl Harbor, Hawaii



Aboard the USS KINFAB, LT Hilton accompanied HMC Belluto (IBC) and a medical staff representative on an inspection tour of emergency medical equipment with a visit to sick bay.

COLLABORATION WITH OTHER FACILITIES

On various occasions in support of work on current DD-1498 research work units, members of NHRC departments establish collaborative associations with personnel in other government and nongovernment facilities. A summary of these associations follows.

ENVIRONMENTAL PSYCHOPHYSIOLOGY DEPARTMENT

Dr. Hodgdon, in collaboration with the Institute of Human Performance of Langley, Virginia, in February collected physical fitness data on U.S. Marine Corps personnel at Camp Pendleton prior to participation in cold weather training.

In August, Dr. Hodgdon met with CPT P. Fitzgerald, USA, of the Exercise Physiology Department, U.S. Army Institute of Environmental Medicine, Natick, Massachusetts, to collaborate on research involving use of Army and Navy body composition data sets.

In March (21-25), LT Crisman met with P. D. Gollnick, Professor of Physiology, Veterinary School of Medicine, Washington State University, Pullman, Washington, to collaborate on biochemical analysis techniques for muscle enzymes.

Collaboration between LT Crisman and CDR A. A. Bove, MC USMP, Professor of Medicine, and Consultant in Cardiovascular Disease, Mayo Clinic, 13-17 May 85 was to discuss requirements for stress testing in experimental studies and treatment of heat exhaustion during experimental testing.

The 30-31 May meeting between LT Crisman and Drs. Sawka and Pandolf of the Environmental Research Laboratory, USARIEM, Natick, Massachusetts, was to discuss heat tolerance and adaptive modeling, and chemical and biological warfare during sustained operations.

LT Crisman's collaboration with UCSD School of Medicine, Department of Pathology Experimental Animal Research Facility, during the period January to December was to determine the acute effects of the slow channel calcium blocker Nifedipine on submaximal and maximal exercise response in ameroid swine conducted under research work unit MR0303.01.01-6043.



In a collaborative effort, one product of NHRC's Physical Fitness Program was a SPARTEN procedures manual reproduced and distributed to the Fleet by the Naval Military Personnel Command.



Since reporting aboard in October, collaborative efforts by LT Kobus include Dr. Larry Ekwandowski of Syracuse University to investigate the effect on performance when meaningful information is presented multimodally rather than unimodally. The application to training procedures also is being evaluated.

LT Kobus also met with Lockheed's Human Factors Division to discuss a NICRAD contract (no cost to government) for Naval Submarine Medical Research Laboratory with the possibilities of collaboration between NHRC and Lockheed on the operability testing of sonar displays using an electrophysiological technique.

Dr. Hord continues his collaboration with Naval Submarine Medical Research Laboratory, Groton, Connecticut, on the Neurometric Program.

Dr. Naitoh met with Dr. Charles Winget of NASA Ames Research Center for a research consultation.

ENVIRONMENTAL MEDICINE DEPARTMENT

Dr. Gunderson and NHRC staff met on the Army TAMMIS Project on 15 October in San Diego, with previous meetings held in San Antonio. There has been a concerted effort to share information with members of the TAMMIS project and to compare approaches of the TAMMIS and FMF projects to the development of field medical information systems. This collaboration is conducted under work unit number 63706N M0095.001-1055, Advanced Development of Medical Information Systems for Navy and Marine Corps.

OFFICE OF THE COMMANDING OFFICER

CDE Dean, Executive Officer, collaborated with LCDR E. Trautman, Fleet Liaison Officer of the Navy Personnel Research and Development Center, San Diego, in September, with regard to shipboard motion research.

BEHAVIORAL PSYCHOPHARMACOLOGY DEPARTMENT

Dr. Spinweber is providing consultation to Daniel F. Kripke, M.D., and J. Christian Gillin, M.D., Department of Psychiatry, University of California, San Diego, on a project entitled "Improving Hypnotic Prescribing in the Elderly." The goal of the project is to demonstrate and evaluate interventions designed to minimize the prescribing of hypnotic drugs to elderly patients. In this study, the usefulness of l-tryptophan as a substitute for benzodiazepine hypnotics will be assessed.

Dr. Spinweber, Dr. Johnson, and staff of the Behavioral Psychopharmacology Department continue their long-term collaboration with Alain Muzet, M.D., of the Centre d'Etudes Bioclimatiques du CNRS, Strasbourg, France, on various studies of the effects of benzodiazepines on sleep, on the effects of noise on sleep, and on the effects of jet lag on circadian rhythms. Dr. Muzet spent 5 months (May-September) visiting the Department. The collaborative work continues long-distance at the present time.

Dr. Spinweber is working with Merrill Mitler, Ph.D., Stuart J. Menn, M.D., and Richard M. Timms, M.D., of the Sleep Disorders Center at Scripps Clinic and Research Foundation, La Jolla, to provide clinical training in sleep disorders medicine to the Scripps Clinic Sleep Medicine Fellows. This year, Penata Shaforenko, M.D., a neurologist, spent two weeks (4-15 February) with Dr. Spinweber learning about the diagnosis and treatment of parasomnias. She also participated in the ongoing research program and conducted sleep disorders evaluations.

Dr. Spinweber is collaborating with Reserve Officer CDR J. C. Gillin, MC USNR, Professor of Psychiatry, University of California, San Diego, School of Medicine, on a review article evaluating the issue of "rebound insomnia", a concept relating to the apparent worsening of sleep which occurs following discontinuation of some sleeping pills. While serving his ACDUTRA with the Behavioral Psychopharmacology Department, Dr. Gillin also participated in data collection on the Marine Corps Rapid Deployment Study at Camp Pendleton and Okinawa, Japan.

Dr. Spinweber, Dr. Johnson, and Department staff are participating in an international study of jet lag in commercial aircrews. Collaborators on the project include LT COL R. Curtis Graeber from NASA-Ames, Dr. Hans-Martin Wegmann from the West German DFVLR, Group Captain Anthony N. Nicholson from the Royal Air Force Institute of Aviation Medicine, and Dr. Mitsuo Sasaki from Japan Air Lines.

Dr. Spinweber and Steve Gomez continue their collaboration with Christina Joy, LT NC USN, Nursing Service, Naval Hospital, Okinawa, Japan, on a project entitled "Study of Shift Adjustment of Nurses". Data have been collected on the effects of use of the Jet Lag Program developed by Dr. Charles Ehret on nurses' ability to adjust rapidly to night shift work. The Jet Lag Program involves manipulating dietary factors, such as caloric intake, timing of ingestion of carbohydrates, protein food, and caffeine according to an established schedule.

Marines from the 1st Battalion, 5th Marine Division, participated in the Behavioral Psychopharmacology Department's study of jet lag.



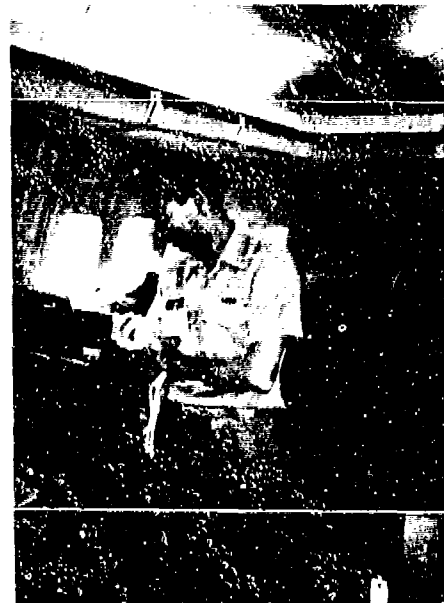
Marines provide performance data during a test battery conducted at Camp Pendleton.



Jet lag study: Performance testing at Camp Pendleton. Note the scalp electrodes in place which provide EEG recordings via the Medilog ambulatory monitoring system.



A Marine subject performs the 4-Choice Reaction Time Test during performance testing enroute to Okinawa.



LT Schuyler Webb conducts a performance test enroute to Okinawa aboard a chartered 747 aircraft.

ADMINISTRATIVE SERVICES DEPARTMENT

Mrs. Aldous, Librarian, and Mrs. Croft, Librarian Technician, collaborated with various universities, colleges, and hospitals and attended meetings, workshops, and training sessions throughout the year to keep abreast of the latest developments in retrieval of scientific literature, to better serve the needs of NHRC's researchers.

Meetings for the Librarian include: the Joint Meeting of the Northern and Southern Medical Library group in Tucson, Arizona, on 20-22 February; the National Meeting of the Medical Library Association in New York, 26-30 May; the Medical Library's Group's Fall Meeting and Seminar held at Glendale Medical Center, 13 November; and the San Diego Health Sciences Library Group meeting at UCSD Biomedical Library, 3 December.

On 8 February Mrs. Aldous and Dr. Naitoh attended the SciMate demonstration at the Biomedical Library, University of California San Diego.

Training sessions, workshops, and demonstrations attended by the Librarian, were: DIALOG II Update at National University, 9 May; Continuing Education Course (MLA) on Clinical Trials, 20 February; the Sydney Library Systems demonstration held at Navy Personnel Research and Development Center's Library, San Diego, on 16 July; Library Computer Workshop at UCSD Biomedical Library, 15 August; and the National Library of Medicine Update held at Long Beach VA Medical Center on 17 October.

On 27 March, Mr. Yeager and Mrs. Aldous attended the InFo '85 at UCSD Medical School.

Training workshops attended by the Librarian Technician, include: CLASS Workshop CONNECT on Library automation, 15 March, and Interlibrary Loans Workshop taught by Pacific Southwest Regional Medical Library System (NLM) at UCSD, Biomedical Library, 12 June.

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ACADEMIC APPOINTMENTS

Several members of our staff teach in the evening at local colleges. Almost all of our senior scientists hold Adjunct Professorships at the local universities. These ties with local universities and colleges serve to keep our researchers up-to-date with the latest academic advances in their fields. These appointments also reflect a high level of acceptance of our staff and their work by academic appointment committees.

University of California at San Diego (UCSD), La Jolla, California

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|-------------------------------------|---|
| Charles G. Gray, M.D.
CDR MC USN | - Associate Research Pathologist, Department of Pathology,
School of Medicine |
| E. K. Eric Gunderson, Ph.D. | - Adjunct Clinical Professor of Psychiatry, School of Medicine |
| Laverne C. Johnson, Ph.D. | - Adjunct Professor, Department of Psychiatry and Department of
Neurosciences, School of Medicine |
| Cheryl L. Spinweber, Ph.D. | - Visiting Lecturer, Department of Psychology, Muir College
- Visiting Lecturer, Academic Internship Program, Earl Warren
College |

San Diego State University (SDSU), San Diego, California

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| James C. Helmkamp, Ph.D.
LCDR MSC USN | - Adjunct Faculty, Division of Epidemiology/Biostatistics,
College of Human Services |
| Laverne C. Johnson, Ph.D. | - Lecturer in Psychology (Professor Level) |
| D. Stephen Nice, Ph.D. | - Adjunct Faculty Member, Graduate School of Public Health |
| Cheryl L. Spinweber, Ph.D. | - Adjunct Associate Professor, Division of Health Promotion,
Graduate School of Public Health |

Chapman College, San Diego, California

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| James C. Helmkamp, Ph.D.
LCDR MSC USN | - Lecturer in Epidemiology (San Diego Community R.E.C.) |
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California School of Professional Psychology, San Diego, California

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| David Hord, Ph.D. | - Lecturer, Advanced Physiological Psychology and Supervisor,
Doctoral Dissertations |
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Mesa College, San Diego, California

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| Carl E. Englund, Ph.D. | - Professor of Psychology, Department of Behavioral Science |
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National University, San Diego, California

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| Carl E. Englund, Ph.D. | - Adjunct Professor, Department of Psychology and Human
Behavior, Graduate School, Division of Arts and Sciences |
| Murlowe von Stuck, Ph.D.
CDR MSC USN | - Adjunct Professor, Department of Psychology and Human
Behavior, Graduate School, Division of Arts and Sciences |

Park College, Parkville, Missouri

- | | |
|-------------------------------------|---|
| Larry M. Dean, Ph.D.
CDR MSC USN | - Assistant Professor of Psychology, Extension Department |
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San Diego City College, San Diego, California

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| Ralph Burr, M.A. | - Teacher of Psychology |
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University of Missouri - Columbia, Missouri

- | | |
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| David C. McDonald, Ph.D. | - Professor of Psychology and Psychiatry (On Sabbatical) |
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William Lyons University, San Diego, California

- | | |
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| Carl E. Englund, Ph.D. | - Member, Learning Resource Specialist & Dissertation Committee |
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Other Activities

HONORS AND AWARDS FOR THE MILITARY

SAILOR OF THE YEAR

HM2 Tracye L. Miner, USN, was selected NHRC's Sailor of the Year, which was based on her outstanding attributes in professional performance, military leadership, military behavior, resourcefulness, and moral character as well as her favorable involvement in community and command affairs.



HM2 TRACYE L. MINER, USN

Sailor of the Quarter, April - June
Good Conduct Medal presented on 17 July
Advanced to Present Rate in September

SAILOR OF THE QUARTER

January-February-March : HM3 James R. Gillet, USN,
Operating Services Department

April-May-June : HM2 Tracye L. Miner, USN,
Environmental Physiology Department

October-November-December: HM3 Suzanne Sinnott, USN,
Environmental Physiology Department



RE-ENLISTMENT



22 January 85

A re-enlistment ceremony for HM1 Georgie Kelley, of the Environmental Physiology Department, was held aboard the STAR OF INDIA, berthed at the foot of Broadway, San Diego.



ROCKING



8 March 85 CDR Brian G. McCaughey, MC, USN was frocked to Captain.



9 May 85, LCDR Charles G. Gray, MC, USN, was frocked to Commander.

17 July 85, HM2 Tracye L. Miner and HM2 Kevin L. Kauers were frocked to their current rate.

PROMOTIONS

HM2 Kevin L. Kauers was promoted to his current rate in October.



13 December - First GC to HM2 Kevin L. Kauers

GOOD CONDUCT AWARDS



12 August - First GC to HM2 Kathleen Khoury, prior to being released from active duty.

NAVY ACHIEVEMENT MEDALS



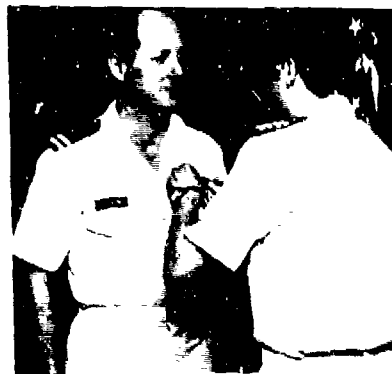
On 15 April, HMI Jennifer Hiett, of the Environmental Physiology Department, was presented the Navy Achievement Medal, awarded from her previous command, Naval Hospital, Corpus Christi, Texas.

NAVY ACHIEVEMENT MEDALS, cont.

To: LT Thomas F. Hilton, MSC, USNR

15 April 85

"...the Naval Hospital, Long Beach requested that LT Hilton conduct a Staff Satisfaction Survey. In July 1984 he met with the Commanding Officer (CO), Naval Hospital, Long Beach, formulated a plan designed to assess the aforementioned areas of concern, and subsequently developed a survey.....survey design was completed in September and administered in October 1984. LT Hilton presented the results in January to the CO and formulated a plan to ensure the dissemination of survey results. LT Hilton's laudatory efforts directly resulted in the successful design, implementation, and analysis of the NH Long Beach command's professional 'climate', thereby allowing several staff-related factors to be appropriately considered in their quest for excellence. Exemplary devotion to duty was the hallmark of his performance."



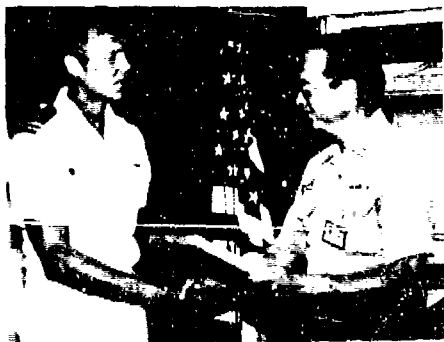
To: LCDR James C. Helmkamp, MSC USN

15 April 85

"Upon reporting aboard for duty in June 1983, LCDR Helmkamp was assigned additional duty as Command Safety Officer. This assignment proved to be very timely in that two months later the command was advised of an upcoming Naval Occupational Safety and Health Oversight Inspection scheduled for November. LCDR Helmkamp's previous experience in safety coupled with his thorough knowledge of Navy health and safety directives and OSHA program requirements were ardently employed in assuring that the NAVOSH program with NHRC was exemplary. He led an indepth safety review and an inventory of over 500 chemical compounds and hazardous materials used in the research programs at this command, correcting deficiencies in safe use and storage. He identified several oversights in the safety training program and initiated routine fire drills, scheduled command safety briefs, and personally tested required safety devices, such as deluge showers and eye wash stations. LCDR Helmkamp's professionalism, leadership, and personal dedication were directly responsible for this command's satisfaction rating on the NOSHIPS inspection. In following up, he assured that the very few discrepancies noted during the inspection were corrected in a very timely fashion--many before the inspecting party departed the area and, where necessary, he coordinated the outside assistance needed. LCDR Helmkamp's performance of duty during the time in reference was in the highest traditions of the Naval Service, an example to be emulated by peers and subordinates alike, and a credit to the uniform of the U.S. Navy."



SPORTS AWARDS (PHYSICAL FITNESS, ETC.)



April 1985, Lieutenant Edward J. Marcinik, MSC USN, was selected to the All-Navy Track and Field Team of the Navy Military Personnel Command, Washington, DC.

In August, LT Marcinik transferred as a student to the University of Maryland.

SPORTS AWARDS (PHYSICAL FITNESS, ETC.) cont.

13 December, NIIRC's Physical Fitness Awards were presented to HML Jennifer Hiatt (Environmental Physiology Department) and LT Schuyler C. Webb, MSC, USNR (Behavioral Psychopharmacology Department).



TRAINING

LCDR James Helmkamp, MSC USN, attended the Senior Officer Course in Military Justice and Administrative Law held 19-23 August 85, sponsored by the Naval Justice School, Naval Station, San Diego.

LCDR A. Robert Donohue, MSC USN, Administrative Officer, attended three courses in San Diego:

- * Contracting Officer Technical Advisor Training in July, held at Naval Training Center,
- * the Commercial Activity Training Course in November, and
- * the DON Computer Security Workshop in December.

RESERVISTS

CDR Alfred A. Bove, MC USNR-R of the Cardiovascular Division and Department of Physiology, Mayo Foundation, Rochester, Minnesota, served his ACDUTRA, the period 12-17 May 85, with the Exercise Physiology Program. His activities included 1) reviewing standards for obesity and the methods for estimating body fat; 2) evaluating the protocol for exercise studies, providing a critique, and reviewing the risk of the study; and 3) providing an outline of approach to treating heat-related disorders in study subjects.

Reserve Officer CDR J. Christian Gillin, MC USNR, a psychiatrist, Professor of Psychiatry at the University of California, San Diego, School of Medicine, and an internationally known authority on sleep, psychopharmacology, and depression, serves his TAD with the Behavioral Psychopharmacology Department.

APPOINTMENTS TO OFFICES - NATIONAL, STATE, LOCAL SOCIETIES, ETC.

LT Thomas Hilton, of the Health Psychology Department, serves:

- * as a Member on the Board of Directors, Society for Advancement of Social Psychology;
- * as Chairman of the Subcommittee on Professional Consulting, Professional Affairs Committee, Society for Industrial and Organization Psychology, Division 14 of the American Psychological Association; and
- * as a Member of the Membership Committee, and as Chairman of the Sub-committee on Non-University-Based Professional Activities, Professional Affairs Committee for Evaluation Network.

CDR Larry Dean, Executive Officer, was awarded a citation from Pacific Beach Junior High School in August for establishing an "Adopt-A-School Program" while he was stationed at Navy Personnel Research and Development Center, San Diego.

APPOINTMENTS TO OFFICES - NATIONAL, STATE, LOCAL SOCIETIES, ETC., cont.

CDR Dean is the Navy representative to the Executive Board of the Department of Defense Human Factors Engineering Technical Advisory Group (DOD HFE TAG).

LCDR A. Robert Donohue, Administrative Officer, is the Assistant Membership Chairman, San Diego Chapter of the American Society for Training and Development.

LT Ronald P. Crisman, MSC, USN, of the Environmental Physiology Department,

- * was honored to have his "electron micrograph" from his published research selected as the cover for the American Journal of Physiology in January;
- * was awarded Fellow at the 28 May 85 Annual Meeting of the American College of Sports Medicine (ACSM) in Nashville, Tennessee;
- * was appointed to the Constitution, By-Laws, Operating Codes Committee of ACSM in May;
- * was appointed a Member of JWGD-3 Tri-Service Working Group on Military Performance, the Performance Physiology Technical Advisory Group (Phys-TAG) in July
- * was appointed a Member to Naval Special Warfare Medical Working Group in June;
- * became a Fellow of the Human Biology Council in August;
- * received "outstanding" in all categories of NHRC's Physical Readiness Testing in September; and
- * was transferred to the Naval Aerospace Medical Institute in Pensacola, Florida in September.



MISCELLANEOUS

Video recordings, photographs, and voice recordings of SEAL "Hell Week" (24 February to 1 March 85) at the Naval Amphib Base, Coronado, California, were obtained by LT Crisman and HMC Spatz of NHRC and LT Reeves of NMRDC, Bethesda, to better define the role of research requirements for the special warfare community.

While in the Washington, DC area in November, CDR Dean made a personal office call on Senator Robert Dole.

LETTERS OF APPRECIATION received during 1985

To : HMI Georgie Kelley, USN
From: LCDR Robert W. Moynihan, MSC, USN
Subj: LETTER OF APPRECIATION

dated 19 January 85

1. "...to extend my personal appreciation to Hospital Corpsman First Class Georgie Kelley for his professional contributions during an orthostatic tolerance/SPARTEN study conducted at NHRC.
2. Since Sept 84 I have been conducting a joint thesis/NARC research project titled 'Effects of an Eight-Week Circuit Weight Training (SPARTEN) Program on Orthostatic Tolerance' in conjunction with an ongoing circuit weight training evaluation at RTC. Much of the success...in completing data collection on 64 subjects from 3 recruit companies over the past 12 weeks I credit to PO Kelley's personal and professional contributions. His liaison with the recruit company commanders and coordination of the recruit company, time with NHRC personnel, and facilities availability certainly demonstrates the personnel management and leadership qualities desired and needed in senior enlisted personnel.
3. ...During the course of this study PO Kelley completed career counselor training. He readily offered sound advice and direction to recruits who were being tested...the excellent management capabilities that he demonstrated is technically very competent and confident. He rapidly learned and understood bio-electrical impedance plethysmography and orthostatic tolerance measurement

LETTERS OF APPRECIATION received during 1985 cont.

techniques that were used for this study. HMI Kelley willingly worked 5 weekends to help collect data...which is designed to assess the effects of the SPARTEN circuit weight training program...which should be beneficial to improving the acceleration tolerance of naval tactical jet aircrews and bears on the usefulness of circuit weight training for conditioning naval personnel physically."

To : LT E. J. Marcinik, MSC USN dated 12 February 85
From: Commander, Naval Military Personnel Command, Washington, DC
Subj: LETTER OF APPRECIATION

"The superior manner in which you implemented the SPARTEN fitness program onboard the USS NEW JERSEY is commendable. Through your efforts, the USS NEW JERSEY coordinated with the President's Council on Physical Fitness and Sports and implemented the program which will dramatically increase personnel readiness and sustainability."

To : LT T. Hilton, MSC USNR dated 21 March 85
From: CO, Naval Hospital, Long Beach, California
Subj: LETTER OF APPRECIATION

1. "...I wish to express deep appreciation for the service you rendered from July 1984 to February 1985. Sensing the need to assess command climate concerning issues such as productivity, quality assurance, operational readiness, communication, organization structure, subordinate development, and morale, this command requested that you conduct a Staff Satisfaction Survey. Your laudatory efforts directly resulted in the successful design, implementation, and analysis of this command's 'climate' thereby allowing several staff-related factors to be appropriately considered in your quest for excellence. Exemplary devotion to duty was the hallmark of your performance and was instrumental in ensuring the successful completion of our mission."

To : LT Schuyler C. Webb, MSC USNR dated 29 March 85
From: Pastoral Care Department, Naval Hospital, San Diego, California
Subj: LETTER OF APPRECIATION

1. "...to extend my appreciation to you for your participation in the Religious Emphasis Week, 4-8 March 1985. The unselfish giving of your time and talent made this first time event a strong foundation for future services."

<NOTE: LT Webb participated as a group facilitator. This program, designed for the Navy family, included speakers and movies dealing with religious themes and the issues of deployment.>

To : LT David A. Kobus, MSC USNR dated 19 December 85
From: Commanding Officer, Navy Personnel Research and Development Center, San Diego, California
Subj: LETTER OF APPRECIATION

1. "...to thank you for your recent contribution as factfinder in staff grievances. Your outstanding assistance resulted in satisfactory command resolution of the grievances. Especially noteworthy is your working many hours on your own time to prepare reports of your factfinding mission. Your extra efforts and willing competence to perform this unusual task are sincerely appreciated."

To : ENS Joseph E. Laboo, USNR dated 30 December 85
: HM3 Kirk Baker, USN
From: Commanding Officer, Naval Health Research Center, San Diego, California
Subj: LETTER OF APPRECIATION

1. "Your voluntary participation in the Chemical Defense research program...required continuous exacting tasks in the area of cognitive and psychomotor performance under the stress of MOPP8, will add significantly to our research program and defense posture of our Nation."

HONORS AND AWARDS FOR THE CIVILIANS

1985 APPOINTMENTS TO OFFICES - NATIONAL, STATE, LOCAL SOCIETIES, ETC.

From the Environmental Medicine Department,

Ms. Anne Roilberg:

- * is an Associate Chairperson and a Member of the Advisory Council of the Inter-University Seminar on Armed Forces and Society,
- * is the Division 15 Representative to the Committee on Women in Psychology of the American Psychological Association (APA), and
- * is Chairperson, Ad Hoc Committee on Women and Minorities in the Military, Division 19, APA.

Dr. Frank Garland is a Member of the American College of Epidemiology.

From the Environmental Physiology Department,

Dr. Carl Englund:

- * is a Member of the Ad Hoc Committee on Human Factors/Engineering Psychology, Division 19, APA, and
- * was appointed to the Sustained Operations Sub-Technical Advisory Group of the DOD Human Factors Engineering Technical Advisory Group.

Dr. Paul Naitoh:

- * is a Member of the Joint Working Group to Determine Drug-produced Decrements in Military Performance (JWGD3 MILPERF), Tri-Service Research Activity, and
- * was appointed a Member of the Committee on Hearing, Bioacoustics and Biomechanics (CHABA) Working Group 98 on Noise and Vibration Criteria for the Space Station, of the National Research Council's Commission on Behavioral and Social Sciences and Education in July.

From the Behavioral Psychopharmacology Department,

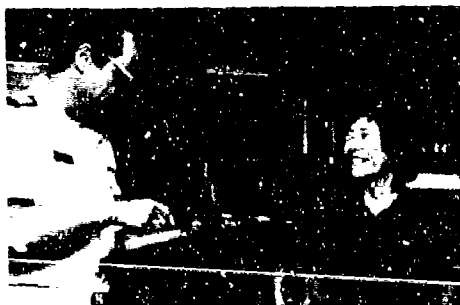
Dr. Cheryl L. Spinweber was appointed to the Faculty of the Department of Psychiatry of the Uniformed Services University of the Health Sciences (USUHS), P. Edward Hebert School of Medicine, Bethesda, Maryland.

Mr. Steven Gomez served as Treasurer of the Minority Science and Biomedical Research Association Association, January to June 1985.

From the Health Psychology Department,

Dr. D. Stephen Nice, Department Head, received invitational orders to provide consultative services to the U.S. Army Medical Research Unit-Europe in Heidelberg, 16-20 September.

AWARDS



Letter of Appreciation
Lucile Cheng, Graphics



Good Driving Certificate
Ralph Garcia, Transportation Office

AWARDS cont.
~~~~~

civilian awards presented on 27 September 1985 by CAPT Fornes:

Quality Step Increases

Janie Banks, Office of the Commanding Officer (Personnel)  
Beverly Donnell, Office of the Commanding Officer (Fiscal)  
Susan Conway, Health Psychology Department  
Susan Hilton, Health Psychology Department  
Mary Aldous, Administrative Services Department (Library)  
Betty Croft, Administrative Services Department (Library)  
Marcie Beckett, Environmental Physiology Department  
Peggy Miner, Environmental Physiology Department



Beckett Croft Conway Aldous

Special Achievement Awards



Dr. Carl Englund  
Environmental Physiology Department



John Yeager  
Environmental Physiology Department

Sustained Superior Performance Awards

(Not pictured)  
Louise Jarrett, Health Psychology Department  
Dave Ryman, Environmental Physiology Department



Lorene Irwin  
Behavioral Psychopharmacology Department



Dick Booth, Research Support Department  
Brenda M. Crooks, Office of the  
Commanding Officer

LETTERS OF APPRECIATION received during 1985

To : Donald Irwin, Electronics Technician  
From: Commanding Officer, Navy Personnel Research and Development Center, San Diego, California  
Subj: LETTER OF APPRECIATION

(Note: Mr. Irwin received two letters of appreciation for his involvement in the CENSUS survey; 15 members of the command participated in the survey.)

Ltr #1 dated 25 February 85:

1. "...NPRDC conducted the pilot test of the Computerized Executive Networking Survey System (CENSUS)....This effort required the coordination of 600 participants to take the CENSUS survey during the week of 26-30 November 84 through the points of contact of each of 13 activities in San Diego.

2. ...Mr. Donald Irwin, is commended for his effort during this pilot test...his willingness to serve as point of contact, to learn how CENSUS operates, and to coordinate and train the panel participants from your activity is greatly appreciated. If it were not for the personal involvement of Mr. Irwin, the high participant rate at your activity could not have been achieved."

Ltr #2 dated 13 June 85:

1. "...the week of 29 April 85, NPRDC conducted the second pilot test of CENSUS. Mr. Irwin is to be commended once again for his outstanding support and efforts in coordinating the survey participants from your activity....his efforts were especially valuable when difficulties in the survey administration necessitated an early end to the data collection."



To : D. Stephen Nice, Ph.D., Head, Health Psychology Department  
From: Commanding Officer, Naval Hospital, Long Beach, California  
Subj: LETTER OF APPRECIATION FOR STAFF SATISFACTION SURVEY

dated 21 March 85

1. "In July 1984 this command requested your assistance in assessing our 'climate' concerning issues such as productivity, quality assurance, operational readiness, communication, organization structure, subordinate development, and morale.

2. Your role in the design, administration, analysis, and presentation of the Staff Satisfaction Survey was noteworthy. Utilizing obvious professional excellence, you dedicated extended hours to ensure the successful completion of each project phase.

3. In February 85 you orchestrated the presentation of the the final survey results to our staff in a fashion best described as sincere, sensitive, clear, and highly professional. Your dedication to excellence in this project ensured its success and contributed immensely to the heightened sense of esprit de corps of this command."



To : Marcia Lucas, Editorial Assistant, Behavioral Psychopharmacology Department  
From: Deputy EEO Officer, Naval Hospital, San Diego, California  
Subj: LETTER OF APPRECIATION

dated 13 May 85

1. "...to express appreciation for the excellent manner in which you provided leadership, coordination, and assistance leading to the successful conduct of the Asian-American Heritage observance held here May 9. As the group leader of the Publicity and Recognition Subcommittee of the EEO Committee, you have distinguished yourself as an excellent leader and skilled writer in publishing articles for the Plan-of-the Day and the Dry Dock base newspaper which was instrumental in the record turnout at both dining rooms and the Asian Arts and Crafts Exhibit. It is this kind of effort and "can-do" spirit that helps foster greater EEO awareness and successful EEO Program management."





## RETIREMENTS

### MILITARY

#### FEBRUARY

On 28 February 1985, Commander Ernest J. Loos, Medical Service Corps, U. S. Navy, Administrative Officer, transferred to the Retired List with 30 years of Active Duty.

He received the Navy Commendation Medal.



#### JUNE

On 29 June 1985, Commander Duell E. Wood, Medical Service Corps, U. S. Navy, Executive Officer, transferred to the Retired List having completed 22 years of Active Duty.



CDR Wood receives his Retirement Pin from his son, AT2 Patrick Wood.

### CIVILIAN



#### In Memoriam

LOUISE M. JARRETT

18 November 1937

23 February 1986

Louise, Editorial Assistant (Typing) for the Health Psychology Department, was medically retired as of 16 December 85. She had 25-1/2 years of Federal Service, with 10 years at NHRC.



# 1985 VISITORS \*

## January

- 10 Mr. James Basile, California School of Professional Psychology (Ms. Hoiberg)
- 10 Mr. Michael Weeks, Sarasota Automation, Inc. (Mr. Pugh, LCDR Congleton, Mr. Hermansen, LCDR Helmkamp)
- 16 Dr. J. Lester, Office of Naval Research, Arlington, Virginia (Dr. Gunderson, Dr. Garland, LCDR Helmkamp, Dr. Palinkas)
- 29 Dr. Toshinori Kobayashi, Research Scientist, Psychiatric Research Institute of Tokyo, Japan (visitor for 3 months) (Dr. Naitoh)

## February

- 4 HMCS Dennis Schieffer, USN, USS MONTICELLO (Command)
- 4-15 Renata Shaforenko, M.D., Scripps Clinic and Research Foundation, Sleep Medicine Fellow, San Diego, California (Dr. Spinweber)
- 11-13 Dr. George Moeller and Dr. Bernice Ryack, Behavioral Sciences Department, Naval Submarine Medical Research Laboratory, Groton, Connecticut (Dr. Gunderson)
- 12-13 CAPT J. F. Kelly, Commanding Officer, Naval Medical Research and Development Command, Bethesda, Maryland (Command)
- 14 CDR James Scaramozzino, Head, Technical Advisory Group for Health and Physical Readiness (TAGHP), and CDR Steven Lamar, Member, TAGHPR, Navy Alcohol Rehabilitation Center, Norfolk, Virginia (Dr. Hodgdon)

## March

- 4-7 CAPT Furry, Executive Officer, Naval Medical Research and Development Command, Bethesda, Maryland (Command)
- 4-7 LT Dennis Reeves, Naval Medical Research Institute, Bethesda, Maryland (Dr. Englund)
- 11-13 CAPT M. Kilpatrick, MC USN, Officer in Charge, Naval Medical Research Institute, Lima Detachment, Peru (Command)
- 25-26 LCDR R. Kallal, CDR W. J. Lambert, & M. Nave, Naval Data Services Center, Bethesda, Maryland (Dr. Gunderson and Mr. Hilbert)
- 27 Shelly Strowman, Research Psychologist, Health & Performance, U.S. Army Research Institute of Environmental Medicine, Natick, Massachusetts (Code 50)
- 29 Professor Oguri, Toho University, Japan (Dr. Naitoh)

## April

- 5 Dr. Lee Dolittle, Visiting Professor, Physical Education Department, University of Southern California, Los Angeles, California (Dr. Hodgdon)
- 23-26 Stephen J. Legg, Ph.D., Senior Scientific Officer, Applied Physiology Division, Army Personnel Research Establishment, Farnborough, Hampshire, United Kingdom (Dr. Hodgdon, LT Marcinik, Dr. Naitoh, Ms. Beckett, Dr. Nice, Ms. Conway, LT Crisman, Dr. Hord, LCDR Helmkamp, Dr. Gunderson)



Dr. Naitoh with Dr. Kobayashi (Jan visit)



HMCS Schieffer, former staff member, during his February visit.

\* Any omissions are purely unintentional.

**April cont.**

- 24 Maj Leroy Dunn, USMC, Division Embarkation Officer, and Capt James Miller, USMC, Assistant Division Embarkation Officer, First Marine Division, 1/7, Camp Pendleton, California (Code 50)
- 26 COL Lynch, Director Army TAMMIS Project (Dr. Gunderson and LCDR Congleton)
- 27 COL D. Schnakenberg, U.S. Army, Director, Nutrition Research Task Force (Dr. Gray)

**May**

May to Sep Alain Muzet, M.D., Centre d'Etudes Bioclimatiques du CNRS, Strasbourg, France (Code 50)

12-17 Alfred A. Bove, M.D., Ph.D., Mayo Foundation, Rochester, Minnesota (ACDUTRA, Code 60 NTC 272)

16 Mr. Sam Levenson, People's Magazine, Interview on "Naps" (Dr. Naitoh)



Dr. Muzet (May-Sep visit) with Dr. Johnson

**June**

- 5 Dr. Mary Winsborough, Institute of Naval Medicine, Portsmouth, Hampshire, United Kingdom (Dr. Hodgdon)
- 14-17 LTC W. D. Clyde, USA, and Dollie Nicholson, Specialist, of the Human Use Review Office, and Cpt Gerald Brunn, USA, Legal Advisor, HQ USAMRDC Judge Advocate's Office, U.S. Army Medical Research and Development Command, Fort Detrick, Frederick, Maryland (Code 60 and OCO)
- 28-2 Jul Mr. Jonathan M. Rabben, Assistant Inspector General for Auditing (AIGA), DOD Office of the Assistant Inspector General for Auditing (Chief Scientist)

**July**

- 15-18 CDR P. Truman, MSC, USN, Program Manager, Fleet Occupational Health, Naval Medical Research and Development Command, Bethesda, Maryland (Dr. Gunderson and LCDR Helmkamp)
- 22-23 CAPT George E. Clark, DC, USN, Commanding Officer, and CDR Stephen A. Ralls, DC, USN, Naval Dental Research Institute, Naval Training Center, Great Lakes, Illinois (OCO, Dr. Gunderson, Dr. Nice)
- 23-24 LCDR G. Banta, MSC, USN, Program Manager, Naval Medical Research and Development Command, Bethesda, Maryland (Command)
- 24 CDR S. Stebbings, Naval Military Personnel Command (N6H), Washington, DC (Dr. Nice, Dr. Hodgdon, Ms. Hoiberg and LCDR Helmkamp)
- 26 Frederick W. Hegge, Ph.D., Chairman, JWGD3 MILPERF, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, DC (Command)

**August**

- 8 Dr. Mark Laudenslager and Steven F. Maier, University of Colorado, Boulder, Colorado, and Dr. J. Lester, ONR, Arlington, Virginia (Dr. Vickers)
- 9 Dr. Dwight Culver and Dr. Hodda Guirgis, Community and Environmental Medicine, University of California, Irvine, California (Dr. Gunderson)
- 12 CDR E. Hoppe, Mental Health Clinic, San Diego, California (Dr. Gunderson)
- 14 Mr. Fuller Dean, MATRIS Project, San Diego, California (Dr. Gunderson)
- 21 Timothy Monk, Ph.D., New York Hospital, Cornell Medical Center, White Plains, New York (Code 50)
- 27 Dr. R. Ward, Department of Psychiatry, University of California, San Diego, California (Dr. Gunderson)
- 27 CDR C. Slater, LT D. F. Neri, Mr. Alan Jacobsen, and Mr. Joseph DeVita, Naval Submarine Medical Research Laboratory, Groton, Connecticut (LT Kobus)
- 27-28 Dr. Kendall Bryant, Naval Submarine Medical Research Laboratory, Groton, Connecticut (LT Kobus)

## September

- 9 Lt Rowland, Head, Special Training Platoon, Marine Corps Recruit Depot, San Diego, California (Dr. Englund)
- 10 Dr. C. Dennis Robinette, National Research Council, Washington, DC, and Dr. Zdenec Hrubec, National Cancer Institute, Washington, DC (Dr. Johnson and Dr. Garland)
- 17 William O. Berry, Ph.D., Directorate of Life Sciences, Air Force Office of Scientific Research, Bolling Air Force Base, Washington, DC (Code 50)

## October

- 7 Dr. Delbert Nebecker, Organizational Management Systems Program, Navy Personnel Research and Development Center, San Diego, California (Dr. Hodgdon)
- 21-23 CDR P. Truman, Program Manager, Naval Medical Research and Development Command, Bethesda, Maryland (Command)
- 24 Dr. Bernice Ryack, Behavioral Sciences Department, Naval Submarine Medical Research Laboratory, Groton, Connecticut (Dr. Gunderson)

## November

- 8 William F. Storm, Ph.D., Crew Technology Division, USAF School of Aerospace Medicine/VN, Aerospace Medical Division, Brooks Air Force Base, Texas (Code 50)
- 12 CPT Charles Rigney, USA, TAMMIS Project, San Antonio, Texas (Dr. Garland)
- 15 VADM Sachio Kawaguchi, Surgeon General, Japanese Maritime Self Defense Forces, Japan (Command and Dr. Naitoh)
- 21 Dr. William Ross, Department of Kinesiology, Simon Fraser University, Burnaby, British Columbia, Canada (Dr. Hodgdon)
- 21 Dr. Bruce Copely, Dr. Mike Buono, Dr. Anthony Sucec, Department of Physical Education, San Diego State University, San Diego, California (Dr. Hodgdon)
- 21-22 CPT Charles Rigney, USA, TAMMIS Project, Academy of Health Sciences, Fort Sam Houston, San Antonio, Texas (Dr. Gunderson)



+ CDR Dean + VADM Kawaguchi  
CAPT Fornes Dr. Naitoh

## December

- 12 LCDR Ben Mitchell, MC USN, Uniformed Services University of Health Sciences, Bethesda, Maryland (Dr. Garland)
- 16 Lt Col Harry Wetzler, DOD Medical Examination Review Board, Colorado Springs, Colorado (Dr. Hodgdon)
- 30 Ms. Sharon Shilling, Epidemiologist, National Institute for Occupational Safety and Health (NIOSH), Cincinnati, Ohio (Ms. Holberg)

#### ACKNOWLEDGEMENTS

The information contained in this report is obtained from staff members on a quarterly basis. Most of the photographs, when possible and by request, are taken by the Command Photographer. Otherwise, it is the responsibility of the individual to obtain same.

Brenda Crooks, OCO Secretary, compiled, designed and provided editorial assistance for this report.

"Special thanks" to:

- \* HMC Spatz, Command Photographer, for most of the photographs,
- \* Other staff members who provided their program photographs,
- \* Anne Hoiberg for extensive proofreading assistance and editorial suggestions,
- \* Jim Bennett, for proofreading, and
- \* Lucile Cheng, for preparation of the report cover.

Copies of this report may be obtained by request to Naval Health Research Center, P.O. Box 85122, San Diego, CA 92138-9174

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